Science AND Religion

TWENTY-THREE OUTSTANDING MEMBERS OF THE CLERGY TELL HOW MODERN SCIENCE HAS AFFECTED THEIR INNERMOST BELIEFS.

EDITED BY JOHN CLOVER MONSMA

Editor of

THE EVIDENCE OF GOD
In An Expanding Universe

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AND
Religion

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As science has broken through into ever new areas, what have its discoveries done to the innermost beliefs and persuasions of outstanding men of religion? Have their beliefs and persuasions been affected in any way? Have they been weakened or strengthened? Is God for today's great spiritual leaders slowly receding into the background or are they finding evidence in scientific discoveries of His ever near and greater luminosity?

SCIENCE AND RELIGION answers these questions. In this companion volume to *The Evidence of God in an Expanding Universe,* twenty-three outstanding men of religion—Protestants, Catholics and Jews—give a joint answer to those who declare their disbelief in God on the grounds scientific progress has made ancient religious teachings untenable. Here we learn how modern science has affected the innermost beliefs of the religious leaders of our country. Here we learn the arguments and conclusions as to whether science and faith are compatible in today's world or clash and must forever oppose each other.

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Science and Religion

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"Science, instead of being the enemy of religion, is really its ally."

—Henry Thomas Buckle,
English historian

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A BRIEF WORD OF INTRODUCTION

THREE years ago G. P. Putnam's Sons published a symposium entitled *The Evidence of God in an Expanding Universe.* Forty American scientists wrote brief chapters on some phase of science, showing with unusual clearness and impelling logic that science is wholly consonant with belief in God. I was privileged to be the editor. The book has been welcomed by many educators and students, as well as by intelligent people generally, both in our own country and abroad. An Arabic translation was published in Cairo, Egypt—which should be evidence of widespread esteem.

With public interest in science and scientific explorations soaring daily it was felt that another volume was desirable, a book not by scientist-writers this time but by prominent leaders in the field of religion. That would mean a different approach to the whole enormously important subject. In this age of deep searchings below and far searchings on high, what has modern science done to the innermost beliefs and persuasions of outstanding men of religion—the impresarios in their field? Have those beliefs and persuasions been affected in any way? Have they been weakened or strengthened? Is God for today's great spiritual leaders slowly receding into the background, or are they being thrilled by His nearer and greater luminosity? We have invited them to tell us through this book.

The various contributors to this volume are of course solely responsible for the contents of their individual chapters. I was only the editor. May I thank them publicly for

their fine co-operation? They are all exceedingly busy men, and they all made exceedingly great sacrifices to help prepare this volume, many of them burning the midnight oil. Their sole motivation was the belief that in these days of crisis America and the world need this specific type of book, and that men and women of intelligence everywhere will be helped by the reading of it.

JOHN CLOVER MONSMA

Science and Religion

SCIENCE AND RELIGION AT THE CROSSROADS

BY DR. EDWIN T. DAHLBERG

Dr. Dahlberg has been President of the National Council of Churches (representing a church membership of nearly 40,000,000) in the years 1958–60, and in that capacity has become widely known and respected not only in the U.S.A., but also in the world at large. He is one of this country's outstanding pulpit figures and a man rich in pastoral experience. Biographic brief: B. A., University of Minnesota; B. D., Rochester Theol. Seminary, with postgraduate work at same institution; ordained to Baptist ministry; D. D., Keuka College; held pastorates in Potsdam, N. Y., Buffalo, N. Y., St. Paul, Minn., Syracuse, N. Y., and since 1950 in St. Louis, Mo. (Delmar Baptist church); Past President, Northern Baptist Convention; member, Central Com., World Council of Churches; member, Exec. Com., Baptist World Alliance; author and lecturer.

ANY thinking person viewing the motion picture, "Inherit the Wind," which is the story of the Bryan-Darrow debates on evolution during the Scopes "monkey trial" in Tennessee, could not help but be impressed by the unrealistic character of that film. The questions dealt with in that film are no longer in the foreground. Science and religion today are occupied with things of great moment and immediacy. They are at the crossroads, and many eminent representatives of both fields are aware of it.

Madame Guyon, the notable French mystic, once declared that "God has creative hours." Commenting on this statement, Dr. William Axling, famous missionary to Japan for 54 years of this century, interpreted it to mean that in the history of institutions and nations there are times when God reaches down His wonder-working hand into our human affairs in such creative fashion that the historian is compelled to turn the page and start a new chapter. There are many indications that such a new chapter of history is at hand.

Something happened on Wednesday, April 12, 1961, that dramatized this conclusion. On that day the Russian astronaut, Yuri Gagarin, became the Christopher Columbus of the Space Age. Rocketed into orbit around the earth, he circled the globe in 108 minutes—actually 89 minutes from the time he got into orbit. Imagine leaving the ground at 9:07 A.M., going around the world, and returning home again at 10:55 A.M. Gagarin's historic flight makes the jet plane look like an oxcart. Disappointed though we may be that our American astronauts, after all their long, hard years of training, were denied the privilege of getting into space first, we cannot deny that the Russian spaceman's feat was a tremendous achievement. It marks a new chapter in the life of mankind.

The temptation now will be to make this the occasion for renewed rivalries, boastings, and an intensified armament race. If this happens we are due for a repetition of the disaster that befell the builders of the tower of Babel. According to the Biblical record (Gen. 11:1-9) the people of earth as they journeyed westward found a plain in the land of Shinar and settled there. Then they said, "Come, let us build ourselves a city, and a tower with its top in the heavens, and let us make a name for ourselves, lest we be scattered abroad upon the face of the whole earth." We are told that God came down and confounded them, confusing their language and scattering them over all the earth. Thus what was intended to become a basis of unity became the origin of discord. What will happen if in our desire to reach the stars today we enter into a frantic space race, goaded by nationalistic ambition, pride and prestige; a race in which each nation

seeks practically to deify itself and to dominate all humanity? The cosmic exploration in which we are now engaged makes the tower of Babel look like child's play—a little experiment with building blocks. The consequences could be correspondingly terrible.

As stated above, scientists and men of religion alike are aware of this. They have been increasingly aware of it since Hiroshima and Nagasaki. They know that today they are at a great crossroads in history. And they are fast becoming penitent because of past failures and are seeking each other's company in an alliance of science and faith.

Never was I more conscious of this spirit of penitence in the scientific community than while on a preaching mission recently at the Atomic Energy Center in Oak Ridge, Tennessee. One evidence of it was found in the simple fact of church membership. A pastor told me that there were 50 Ph.D's in the membership of his own church, and that in a neighboring church there were 75 Ph. D. members. This might in itself not be convincing proof of the religious concern among some of our top-flight atomic scientists. But conversation with them was most convincing. Rarely have I encountered in any professional group such a spirit of humility. As one of them said, "We know something of the limitless powers we are dealing with, and their potential either for the destruction or the healing of mankind."

Anyone visiting the great atomic reactors is bound to be possessed of this same feeling. To look fifteen feet down into the deep waters of the swimming pool reactor, and see there on the bottom a sealed container of radio-active uranium with its mystic blue light glowing among the shadows, is to be overcome with awe and wonder. The scene recalls the day when Nadab and Abihu, the sons of Aaron, each took his censer and offered a strange fire before the Lord, such as He had not commanded them. The Revised Standard Version calls it "unholy fire." "And fire came forth from the presence of the Lord and devoured them, and they died before the Lord" (Lev. 10:1, 2).

Whether the atomic fire of our time is to be a holy or un-

holy fire, whether it will consume us or bless us, will depend upon the purpose to which we consecrate it. The visitor to the Atomic Energy Center is everywhere reminded of the very real possibility that it could consume us. Stairways, corridors, railings are blocked off here and there with signs saying, "Danger! Radioactive!" or "Caution—Contaminated Area!" These warnings become very personal when one stands on the platform of the radiation detector near the exit —a device which looks like nothing so much as the face of a Coca Cola machine. When the hands and wrists of the visitor or worker are thrust into the openings in the front of the machine, the Geiger counter mechanism begins to operate. As it rattles on, the indicators register the degree of radiation that may have been accumulated during the tour of the plant. Fortunately it is well within the bounds of tolerance. But it makes a person pretty thoughtful. On a large scale, as in the case of a bombing attack or an industrial disaster, how will radiation affect the unborn? What will be the birth defects and chromosome changes? Will our great cities be left as nothing more than heaps of radioactive ruin? Or will fields become more fertile, surgery more effective, and human bodies more healthy, because of the wise and beneficent uses of this strange new energy that has become available for modern man?

Fortunately the men engaged in atomic research are devoting much of their time to the constructive uses of their science. A visit to the Oak Ridge Institute of Nuclear Studies, Inc., is impressive in this connection. This is the place where 38 sponsoring universities, operating in direct contact with the U. S. Atomic Energy Commission, carry on constant experimentation with a view to the physical betterment of the human race. It would be almost impossible to enumerate within the limits of this brief space the varieties of humanitarian endeavor that are carried on here: lectureships in health physics, training courses in the agricultural and industrial uses of radio-isotopes, maintenance of a 30-bed hospital where more than 1000 patients have already been treated for cancer and allied diseases, and many other related programs.

It was true what one of the representatives of the Atomic Energy Commission said to the Home Missions Conference of the National Council of Churches in 1959: "The churches, too, could make more use of atomic energy!"

The rapprochement between religion and science is vividly personified by Dr. William G. Pollard, Executive Director of the Institute of Nuclear Studies. Once somewhat of an agnostic, he became so deeply interested in religion that a few years ago he was ordained as a priest of the Episcopal Church. He actually serves as the head of a mission of St. Stephen's church in Oak Ridge and preaches every Sunday. This distinguished clergyman-scientist exerts an extraordinary religious influence. It was my privilege to attend a two-hour lecture which he gave at the conclusion of a six weeks' course at the Institute for scientists from all over the world. In the audience were Buddhists, Moslems, Hindus, Jews, Christians, and representatives of other religions of all nations. They sat spellbound as he lectured on "The Origin of the Universe." While his discourse was extremely technical, it was a truly religious experience to hear him describe vast galaxies of stars 6½ billion light-years away. As he told of what might have happened in the first half hour of creation, and analyzed the various theories of an instantaneous or a continuing creation, as well as what atomic science may reveal concerning the subsequent history of the universe, one could not help but thank God for an intellect so competent and so dedicated to truth and to God. His associate, Dr. Ralph T. Overman, a Southern Baptist, is likewise a servant of Christ and the Church.

Men such as these are prophetic of a new era in the relationships of science and religion. They realize that the Bible is something more than a book to be argued about. They know that it is a book to be lived by, also in the wide and labyrinthian provinces of science. In like measure, the present-day leaders of religion are beginning to appreciate the fact that science is not an enemy to be denounced but rather an ally to be welcomed as one of the redeeming forces in the life of mankind.

Theologians and churchmen generally, too, are in a penitent mood. They know all too well how badly religion has failed. It has seldom been "baptized into a feeling of the conditions of the people," to quote a phrase of John Woolman, the eighteenth-century Quaker preacher. There is also an increasing concern because of the divisions that have fragmented the Christian Church into some 250 denominations, some larger and some smaller. Fatal above all else has been the chasm existing between the intellectual insights of the scientific mind and the spiritual insights of the religious mind. The result of this divorce between science and religion has been a kind of "soulectomy" of modern man. As a consequence of this silent but demonic surgery, the real soul of our culture has been extracted, with the result that society has been reduced to a kind of secular body without a spirit, without a faith, and without a philosophy. This secularization is evident not only in the confusion of the Church. It is revealed also in the abstractions of modern art, in the dissonance of the popular music of the day, and in the uncertainties and vagaries of twentieth-century architecture. All these manifestations of our human order are lacking in a sense of joy, melody, and climax. They indicate the widespread perplexity of the nations. They breathe little of the spirit of hope and immortality.

Signs are now appearing on the horizon, however, that give promise of a better day. Very heartening among the churches is the growth of the ecumenical spirit, whereby a co-operative Christianity is made possible. No one can attend the historic assemblies of the National and World Councils of Churches without rejoicing in the conscientious efforts of the Protestant and Eastern Orthodox communions to determine what is the "true, healthy, New Testament Church." While it will take a long time to define the nature of the unity that we seek, immense progress is being made. Old suspicions are vanishing and barriers are breaking down as the people of all denominations pray together, study together, and work together.

One of the amazing results of the ecumenical movement

is the degree to which men of science are willing to serve as resource leaders in such great areas of human concern as world peace, race relations, industrial studies, population control, family life, education, worship and the arts. Sometimes these mutual contacts and exchanges of thought between the church world and the scientific world develop a spirit verging on revival. Well do I remember one of the greatest scholars of our time who at the close of a panel discussion in which he had participated gave this deeply moving testimony: "I was brought up outside the Church. I have therefore had none of the experiences which for the rest of you men and women here are a part of your life. It is up to you to convert me and to show me why I should be a Christian."

He spoke in all sincerity. I do not know whether he has ever become a believer, in the New Testament sense of the word. But it is significant that in one of the discussion groups that evening, following the panel, we all agreed that here was a great soul, hungering and thirsting for something we felt that we possessed but which we had not been able to communicate to him. We closed the session with prayer, and in his absence the burden of our prayer was not so much for him as for ourselves, that the world might see that we had been with Jesus.

These experiences of communication may be more far-reaching than we now realize. An illustration is found in the developing relationship today among theological and medical students. In St. Louis, for example, medical students from Washington and St. Louis Universities meet periodically with theological students from Concordia and Eden seminaries for better acquaintance and understanding of their mutual callings. Still further, several groups of ministers meet regularly with a psychiatrist to discuss procedures in dealing with family problems, alcoholism, and personality difficulties. A considerable number of theological students in most of our standard divinity schools now spend a series of weeks or months in clinical training in our hospitals and psychiatric clinics in order to be better prepared for pastoral counseling. These growing associations are based on the

theory that any adequate treatment of patients must deal with the total personality: body, soul, mind, and the emotions.

The knowledge and technological skills of science can contribute immensely to the service of religion, and religion in turn can powerfully stimulate scientific research by calling attention to the needs, goals and meanings of life. Science has been of great help to religion in the realm of mass communication, manuscript studies, and microfilming, to mention just a few examples. The sermons of Oswald Hoffman over the Lutheran Hour, the evangelistic messages of Billy Graham, and the worship services every Sunday over the radio and TV networks of the National Council of Churches —these and others reach millions of people with the Gospel of Christ where the Apostle Paul could preach only to thousands. For this we should be constantly grateful. So likewise should we be grateful for the carbon studies by which the age of manuscripts such as the Dead Sea Scrolls can be more accurately determined, and for microfilming by which religious literature of all ages can be preserved in unbelievably compact form—literature which must now be stored up on endless library shelves throughout the world.

Our day is full of bewildering scientific discoveries. The chief responsibility of the world's religious thinkers is to interpret these discoveries in such a way as to give meaning and direction to life. This is the area in which American Christianity should excel. Our country will make a serious mistake if we enter into competition with Russia only in the areas of science, technology and military power. It is in the realm of religion and the spirit that our true strength lies. Here is where Russia is weak. Its theological and philosophical thinking, bound as it is to a materialistic view of the universe, is decidedly backward. Communists are still carrying on the kind of scientific-theological debates from which we graduated long ago. Although there may have been a mass reversion from religion within the boundaries of the Communist empire, Soviet thinkers are dead wrong in their conclusion that "the exploitation of nuclear energy, the con-

quest of cosmic space, the production of new artificial materials—all this provides inexhaustible material for exposing the antiscientific outlook of religion, and thus proving the superiority of atheist-materialist science." [1]

The Communist party has been ruthless in its uprooting of religious faith among Russian youth, but there are evidences even now of a spiritual restlessness among many young Russians. A poignant example is the following letter written by a schoolboy in Leningrad to the editors of *Nauka i Religia* (Science and Religion), the atheist monthly published in Moscow, and reproduced in its fifth number, 1960. The boy's name is Gennady Gromov. He is in the ninth class at school. He writes thus:

"I am 16 years of age. I have never yet believed in God. I read your paper regularly, and also the latest atheist publications. But I regret to say that the books written about atheism are boring and uninteresting. They are very vague on many points which one wants to understand, too. The thing is, my mother believes in God. I try to convince her that she is wrong, but so far I have not succeeded. When I tell her there is no God, and that there are no Saints, she refers to the Bible and to the explanations of the clergy. And then I don't know what to answer. All I can do is retreat. Dear Editors, it would be very nice if more interesting and more readable books about atheism could be published for school children. They should explain in detail how life began on this earth, how the Bible was written, and what the different sects believe."

The comment by the editors of *Nauka i Religia* is interesting: "We agree entirely with our young reader. What do the Academy of Pedagogic Science in Russia and the 'Utshpedgis' and 'Detsis' [educational publishers] say about it?"

It is obvious that atheistic materialism is the dominant philosophy in Russia, and that it has taken captive the minds of a whole new generation. But obviously, too, there are

[1] "Atheist Propaganda in the U.S.S.R.," quoted from the Desk for Documentation concerning Eastern European Churches, World Council of Churches, Geneva, July, 1960, No. 3-7.

lurking doubts in the minds of young students like Gennady Gromov—questions that their atheistic teachers cannot satisfactorily answer. The time may yet come when the grandchildren of Nikita Khrushchev will come to our children and ask, "What can you tell us about God? Have you any insights to share with us concerning the nature of our being, the resurrection from the dead, and what lies beyond history?"

It is here where the theologians and the scientists of the Western world must do their most intensive thinking, in order that there may be an adequate interpretation of man's true nature, of God, and of what God has in store for us in the way of an eternal destiny. It is from this kind of thinking that all our freedoms have come. Even the children in our Sunday schools are asking their teachers and pastors today about the God of outer space. They say to us: "If there are other inhabited worlds beyond this world, will Christ be the Saviour of those worlds, too?" For the Christian the answer is found in the words of Jesus himself:

"All authority in heaven and on earth has been given to Me. Go therefore and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit, teaching them to observe all that I have commanded you; and lo, I am with you always, to the close of the age" (Mat. 28: 18-20, R.S.V.).

We stand undoubtedly at the threshold of a revival of religion—a revival of great proportions and great depth. There could be no mightier challenge to the scientists and religious leaders of our time than to work together for such a consummation of our hopes and dreams. The alternative is utter chaos. Men and women everywhere are waiting for someone to proclaim the faith of our fathers in the language of our children. As we have had an International Geophysical Year in which the scientists of all nations have co-operated, so we need an International Spiritual Year in which the leaders of all Christendom and the representatives of every branch of science and learning will together think through the implications of our time. This is imperative if we are to

have an adequate reply to atheistic materialism and to find our way to peace among the nations.

Not only science and religion, but the whole world, today, is at the crossroads. Christian leaders and scientists together can do much, under blessings from on High, to turn humanity in the direction of that future envisioned long ago by Isaiah and Micah: "They shall beat their swords into plowshares, and their spears into pruning hooks; nation shall not lift up sword against nation, neither shall they learn war anymore" (Is. 2:4; Mic. 4:3; R.S.V.).

In the meantime, in this day of tremendous scientific achievements, let us not forget the words of Dr. Robert J. McCracken of the Riverside Church, New York: "How difficult not to believe in God!" Nor let us forget the positive assertion of a great scientist of recent times, Lord Kelvin, world-renowned physicist: "If you think strongly enough, you will be forced by science to believe in God."

RELIGION BASIC TO KNOWLEDGE

BY DR. ADDISON H. LEITCH

Dr. Leitch is not only recognized as a brilliant scholar but is also known for his rare ability to state deep and discerning thoughts in plain, fluid, oftentimes amusingly homespun English. Biographic brief: B. A., Muskingum College; B. D., Th. M., Pittsburgh-Xenia Theol. Seminary; Ph. D., Cambridge University, England; D. D., Muskingum and Grove City Colleges; Litt. D., Grove City College; taught at Assiut College, Egypt, Pikeville College, U.S.A.; Dean of Men, Grove City College; Dean, and thereafter President, of Pittsburgh-Xenia Theol. Seminary, 1946–1959; Professor of Historical Theology, Pittsburgh Theol. Seminary, since 1960; guest lecturer at colleges and theol. institutes; Past President, Western Section, Alliance of Reformed Churches; author of books and numerous religio-scientific articles.

WHEN I was just ten years old we entertained for Sunday dinner the visiting minister. He was a very special case: a Seminary professor decked out in a full beard. He looked like the fount of all wisdom and I could hardly wait to ask him the question which had been pressing on my mind for some time. Finding a break in the conversation, I blurted out to Dr. David McGill: "How do you know there is a God?" To which he answered immediately: "How do you know anything?" This silenced me for the rest of the meal and has puzzled me for these many years since. My only encourage-

ment has been the discovery that the same question has been a full-time assignment for sages and philosophers throughout the history of human thought, so much so that the whole question, "How do we know anything?", that is, the problem of knowledge, is a special discipline in philosophy called Epistemology.

How then do we know? Well, we know a great many things on the word of somebody else. It is surprising, when you think about it, how much of our lives is comfortably based on what somebody else says. This is not a basic way of knowledge but is so useful to us that one wonders why we back away from what people tell us in the field of religion. We go to a doctor who has a diploma on the wall of his office asserting that he is a graduate of the Medical School of the University of Pennsylvania. I cannot read the signatures on the diploma, I have never seen the buildings of the Medical School, I do not know any of the professors who taught our doctor, and I do not have any knowledge of the courses which were taught, and yet I have great confidence in that diploma. This kind of confidence is not merely academic because I am willing to subject my loved ones to his diagnosis and treatment even in life-and-death situations. When he tells us that there is something wrong with one of our children we have to accept what he says; more than that, when he gives one of our children a shot of penicillin as his cure for the thing diagnosed we have to accept that he is giving the right medication; and we have to accept further that behind the needle there is indeed a substance called penicillin.

Meanwhile, the doctor himself is probably accepting the authority of the drug company regarding the penicillin, and the reputation of the drug company is probably assumed on the grounds of good advertising and good public relations. With a life-and-death situation before me I could take the time to check out everything, from the medical school to the drug firm, but this might take years, especially if I wanted to check on penicillin, and in the meantime my child would die. I am simply shut up to trusting a great many authorities, and trust, interestingly enough, is a kind of religious activity.

We raise the question again, therefore, why we trust and believe in so many fields of life and refuse to accept authority in religion. Would it not be wise to accept what Jesus says about prayer; can we not count on what Isaiah says about God; is not Jeremiah worth listening to on morals and destiny? These authorities are experts in their fields and one ought, on the face of it at least, to give them sober hearing.

Ah, you say, but there are many religious authorities. Shall we listen to the Old Testament or the New Testament, to Christ or Mohammed? And yet, by the same token, we are aware that homeopathy and osteopathy and faith healing and tea leaf reading might raise serious questions against the authority of our home physician. And even within medicine itself there are strenuous arguments, for example, over the question of the importance of cholesterol in the blood and the means by which this cholesterol is or is not developed.

One of the basic tenets of science is that we have not yet arrived at the full truth. What shall we do then? Shall we stop until we know everything? No, we must accept what is known; we must make a decision in the light of evidence which is not total; we must commit our lives. Unless we are to be completely paralyzed we must in some fashion and to some extent "walk by faith." It is significant to note in passing that words like "trust" and "faith" have edged into our discussion.

The critics of this approach, however, have a case, and their case rests on this: When we accept truth on the basis of authority we are working on a secondary level, for, given time and opportunity, one ought to be able to test out authoritarian statements on more fundamental levels. One of these deeper levels is what is called Empiricism. That means simply knowledge by experience or, more exactly, knowledge coming by way of our senses and controlled closely by experiment. "I saw it with my own eyes, I heard it with my own ears, I was there myself, so I know what actually happened." Thus our knowledge validates itself by a series of tests in the external world. Sir Isaac Newton, observing a wide variety of falling bodies, was able eventually to control by

experiment the kinds of bodies that fell and the situations in which they fell, and he came up finally with a law of falling bodies, more popularly known as the law of gravitation or, more exactly, a law which assures us that every body in the universe attracts every other body in the universe by a force which can be exactly measured. Thus what began as a sense experience ended up as a scientific law, everywhere and always applicable so long as the conditions could be controlled within the framework of a defined experiment. Note the move of this process: first the experience, then the experiment, then the law. But note also that when the law is finally established the law is not a thing in itself. It is merely a description of what happens under controlled experimental conditions. This law which is an end product must never be made a strait jacket to control ahead of time what the facts themselves may later dictate.

We can turn profitably to another illustration. As late as a hundred years ago it was considered to be against the law of nature for man to be able to fly. But by now we know a whole series of aerodynamic laws and we do fly. When the time came for us to break the sound barrier there followed new experiments and then new laws. A question worth pondering is whether there may not be ahead of us an almost endless number of possible ways of doing things which we have not yet experienced, or which we have not yet subjected to experiment, out of which new laws may be discoverable, rendering obsolete the limitations within which we now operate because of the laws which we now know. What I am trying to say is that the laws now known must not be considered finally determinative of what is yet possible. In this scientific age in which we are now living we are in a climate and atmosphere of thinking which tends us to limit our knowledge to what has been thus far tested out. If we say, for example, that prayer is impossible because of natural laws, we are impoverishing ourselves by using the laws so far discovered to limit what might yet be infinite possibilities.

Men have freed themselves from many superstitions and fears, and enriched their lives beyond measure by the scien-

tific-empirical method of knowledge. Science has insisted on the controls of the laboratory and by this has blessed us, but we must be cautious lest we conclude that all reality and all knowledge can be subjected to laboratory control. It would be hard, we easily recognize, to subject courage, loyalty or love to laboratory techniques. Moreover, the scientists recognize the limitations of our senses. Everyone understands optical illusions, where the way in which we see things can fool us. Moreover, there are certain limitations to our ability to see at all. There are light rays which do not play on our particular kind of retina. There are sounds which vibrate beyond our capacity to hear. There can be, at least by hypothesis, a great many things of which we are not aware even as possibilities. What would life be like to a man with six senses in a universe of forty dimensions? The limitation of our senses to five and the confusion which sometimes takes place as we try to organize sense data, even apart from interpreting data, ought to teach us some humility when we are tempted to insist that something is very, very sure because we know it by our senses. As an added difficulty, every laboratory technician knows that even the invention of, or the materials for, an experiment can baffle him completely when he tries to check out data of which he is already fairly certain by hypothesis.

Closely interlocked with Empiricism is a way of knowledge called Rationalism. It may be hard to realize that there have been some first-rate thinkers who have discarded sense experience in favor of reasoning alone. They insisted that valid knowledge is not from the outside in but from the inside out. Recognizing that our senses frequently play us false and are limited in their scope, may a man not find greater truth working only with his mind, starting with things which cannot be doubted there and working from that point out to certain assurances in the external world? We ought to recognize that some men with first-class minds have believed that this is the proper approach to knowledge. Mathematicians prefer to deal with the abstractions and symbols of the mind unhampered by the individual items in the external world. A

man like Descartes doubted everything until he found certainty in the existence of the inner self, his own ego. Being assured, because he could think at all, that he himself, the thinker, must exist, he was able to move by careful steps of the reasoning process to the reality of the external world and finally indeed to the existence of God. One does not need to recommend this particular method of knowledge to know that it has great validity, but one must not limit himself to it.

It was the work of Kant to bring these two methods of knowledge together—the method which throws weight on the data of the external world of sense and the method which throws weight on the internal world of the mind—and to discover that our knowledge lies in the interlocking of both. The name of Kant opens up wide possibilities to which we cannot give attention in this brief chapter, but we must note in passing that Kant made the external world of objects and the internal world of the ego not objects of proof in themselves, but necessities a priori for the whole process of proving anything at all. In other words, if Kant is right we have to believe in the existence of the thinking person, in the existence of the substance of the universe, and in the existence of God, before we can set to work either empirically or rationally on the knowledge of anything else. Again we must note that with Empiricism and Rationalism, our two most honored ways of knowledge, we are finding "belief" forcing its way into the discussion. This is a far cry from that easy self-assurance of a man saying, "I know the thing is true because I saw it with my own eyes." Knowledge is much more complex than what one "sees" at the outset!

With these things in mind, the objectivity of knowledge comes under fresh scrutiny. I have been impressed within the last year by a book by F. W. Bridgeman called *The Way Things Are.* Bridgeman is a Harvard professor of Physics and a Nobel prize winner working in that field of the sciences which we look upon as most objective and most exact. In this book Bridgeman denies that there is any such thing as pure objectivity, insisting rather that everything we know in the objective world is related in its truth to the subject, that is,

to the observer. The mind of the observer and the stance of the observer and the moment at which the observation is made all join in dictating what is actually seen and experienced in the external world. In other words, the inner man is a large factor in determining the nature of the world around him. The subject is always conditioning the object. Bridgeman goes so far indeed as to say, "Truth in the last analysis is the feeling in the bones." And this from a physicist, a man working in a field which we like to think of as purely objective science! Criticisms laid against religious people that they are too gullible, or that they place too much weight on belief, or that they are too subjective, do not sound so harsh after the findings of physicist Bridgeman.

There are weaknesses discoverable also in our reasoning processes. Speaking generally and simply, our reasoning processes are either inductive or deductive; that is, they either lead us into a principle or general truth, or they lead us away from principles and truths by certain logical steps. If I wish to use the method of induction and thereby make a correct general statement about anything, I can do so only after I have made careful observation of all the data. But I am never able to make an observation of all the data. I cannot imagine myself examining every single possibility. Perhaps I can examine ten thousand cases, or perhaps by a great stretch of the imagination ten million cases can be examined. But even so I have to base the truth of my findings on some approach to a limit, but not to the limit itself. The next item could be different (although this is not probable) and that different item would change my truth. Thus, every statement of truth is related to the number of observations which I have made or which humanly can be made. When I say a thing is true, therefore, I am saying that it is true within the limits of my observation.

But suppose that I am going to reason *deductively* from a principle or truth. My truth is as true, and only as true, as the number and exactitude of my observations. Beginning with such a truth I can then deduce. To use an old-time illustration, suppose I say "all men are mortal." Everyone knows

this, but how do they know? Has anyone or everyone actually seen all men die? In a lifetime very few of us have seen anyone die at all, although we have reasons for believing that men are dying every day and everywhere. The only point I wish to make is that here is something that everyone believes, and it is a belief resting on an induction, resting in turn on the inability of anyone to be sure that he has all the data.

This kind of argument tends toward the ridiculous, so we shall accept the general principle, "all men are mortal," just for the sake of argument. We proceed then to say, "Socrates is a man," and we move by necessary logic to the conclusion, "therefore Socrates is mortal." Whatever the value of this particular piece of reasoning may be, we have assurance now that Socrates, even before his death, was a mortal man. How do we know that he was mortal? Because all men are mortal. But how do we know that all men are mortal? Because we have observed all the cases. But the plain fact is that we have not observed all the cases. Leaving critical questions to one side for the moment, are we ready to say that Enoch died, or that Elijah died, or that Jesus was mortal? We hesitate over evidence of immortality because the evidence opposes natural law, and yet if we go back to what we said previously, our natural law is a description of what has actually happened and cannot be used to determine what has to happen to Enoch or Elijah. If Enoch was not mortal then our principle, "all men are mortal," is not true and cannot therefore be used against the immortality of Enoch. To repeat: we *induce* to our first principle, we *deduce* from our first principle, but in the process of rising to our principle and descending from our principle we were never able to say that all the evidence was in, nor could we say that all the evidence could be in. All our so-called proofs, therefore, although they approached some kind of finality, are still just *approaches.* The mathematical symbol "pi" is generally thought of as 3.1416 but is more exactly 3.1415926534, etc.—because it cannot be worked out all the way. In the meantime, it is a very useful tool out to its fourth decimal point. So we may conclude to our principles and laws just so long as we remember that these

truths are never more exact than the possibilities of our inductions.

We have touched now on authority and have indicated that authority is well grounded only when it falls back on Empiricism and Rationalism. We have discovered in Empiricism and Rationalism certain built-in limitations. We have also noted in passing that such ideas as trust and faith and belief, not to mention feeling, are not necessarily foreign to the scientific method or to the reasonings of the philosophers. If we can allow more than one method of knowledge, I wonder if we are ready now to introduce intuition, or immediate knowledge, as having validity.

Intuition, or immediacy, as a way of knowledge is a very interesting one. What we are talking about here is our knowledge in areas which are beyond any kind of objective proof whatsoever. Instead of being the objective of our knowledge they are the ground of operation when the knowledge process begins. It is not something we prove so much as something we have to accept before we can prove anything else. Immediate knowledge is the groundwork for our reasoning and the groundwork for our empirical experiences. For example, I can ask the very simple question, "How can you prove that you are alive?" "Well," you answer me, "I simply know that I am alive." Unless I know at the outset that I am alive, I don't even set out to prove anything by either reasoning or experience. It might well be that I am not really alive but actually dead. I died last night and the experiences of this day are simply the kind of experiences that people have after they are dead. Now, I don't believe that this is true and neither do you, but you will notice that the word *believe* has come into our conversation. It is because I believe that I am alive that I set out on any other project. I walk through the days of my years with the assumption that I am alive and without taking the trouble to prove this fundamental fact.

By the same process I can ask the question, "How do I know that I am awake?" This morning I awoke with the ringing of the alarm, shut the alarm off, and fell back to sleep

for a few minutes, and everything that has happened this day has been a part of a dream which will soon end when someone shakes me and wakens me for the day. How can I prove that I am operating in the world of those who are alive and awake, when I cannot prove that I have awakened this morning? Now it turns out that I *believe* that I am awake, and you *believe* that you are awake, and we both *believe* that we are both awake, and because we both *believe* this we are able to discuss together the whole question of knowledge. But let me underline the fact that this being awake is not something which I can prove; it is something which I believe, on the basis of which I set out to prove other things.

We can have considerable fun by raising the question as to whether I am sane, and the kind of thinking we have been doing in these latter paragraphs raises serious questions as to whether I *am* sane! It is quite possible that I am insane, but that people have agreed among themselves that they will give me the impression that the things I do have sanity. Therefore, if I ask you, "Am I sane?" you say, "Of course you are!" because you have agreed ahead of time to keep telling me this sort of thing. So I continue to operate on the assumption that I am sane, whereas everyone around me knows that I am quite insane. Now, I don't *believe* that I am insane, neither do you *believe* that you are insane, and we both depend on the sanity of the person with whom we are conversing. Thus, taking our sanity as a first truth, we then try to carry on some sane arguments with regard to the whole field of knowledge. How I know that I am sane is not proved by reasoning, but I reason because I believe myself to be sane. It is not proved by external objective experience in the sense realm, because I have to believe that I am sane before I even discuss these matters. This immediate or intuitive knowledge, therefore, in this realm of what we call first truth is the ground of all our operations.

Following this type of reasoning leads us to some significant observations when we note how a scientist operates with what he calls scientific data. He walks into his laboratory believing a great many things which are not the object of

his scientific method. He has to believe in the truth of many things before his research begins. He believes quite simply and without even thinking about it that he is alive, awake and sane. But he also believes some other very important things.He believes that there is Truth, and that his data will be related to some kind of unifying principle in a universe of truth. No item in any of his researches can be unrelated to the wholeness of things, and if such an item should appear he will either have to correct the item or change his concept of the unity of the universe. He also has to believe in reason. Things have to make sense; they have to "stand to reason." If an item does not make sense, he knows either that he is wrong in his findings or that he has to reassess what he thought he knew before, because things *have* to "hang together."

The scientist also recognizes, but does not prove, that his search for truth is worth his time and may be worth his life. This is a value judgment which will absolutely refuse to subject itself to laboratory proof. In addition to this value judgment he has to make a moral judgment. To be a *good* scientist he will have to be an *honest* scientist. Science as science cannot survive apart from honesty. Some years ago a Russian "scientist" launched a new Mendel's law having to do with inherited characteristics in biology. True scientists around the world refused his findings in the belief that he had subjected his science to Russian politics and economy. They refused him as a scientist because they suspected his honesty. It is, we repeat, quite impossible to escape a moral judgment in science.

It is worth our contemplation why in this universe as constructed Empiricism, Rationalism and other methods of knowledge are impossible without the recognition that morality lies at the basis of their operation. And morality is inseparable from some type of religion. Knowledge, all knowledge, even scientific knowledge, finds religion inescapable.

NOT EVERYTHING IS RELATIVE

BY BISHOP GERALD H. KENNEDY

Bishop Kennedy is known throughout the country as an incisive, independent thinker and a man of great leadership capabilities. He is at this writing the Presiding Bishop of the Methodist Church, the largest Protestant denomination in the country, with nearly 40,000 churches and a membership of close to 10,000,000. Biographic brief: A. M. and B. D., Pacific School of Religion; S. T. M. and Ph. D., Hartford Theol. Seminary; several honorary degrees from various institutions; bishop of the Portland area 1948–1952, bishop of the Los Angeles area since 1952; has lectured at the following universities: Southern Methodist, Southwestern, Emory, Depauw, Yale, Colgate-Rochester; member of many important church commissions and committees; author of ten books.

AT an American air base in the far north of Alaska a pilot checked the weather one night before a scheduled flight the next morning. He asked for the temperature and the forecast. "It is sixteen degrees below zero and continued warm, sir," was the reply.

I got off a plane in Honolulu a few years ago, and the friends meeting me at the airport were all complaining about how cold it was. The temperature was sixty-four degrees.

Now, this indicates that there are a number of things in life which are merely relative. If you expect it to be fifty

degrees below zero and it is only sixteen degrees below, it will seem like a moderate heat wave. But if you are used to a temperature in the high seventies, sixty-four degrees feels cold. And it must be confessed that many human experiences are measured according to what we have become accustomed to regard as normal.

It is a human tendency to press partial truths too far. Most of us can never get a great idea without carrying it off limits. We have a driving desire for logic and order, so that we tend to squeeze the exception into the mold of the general. Rough edges bother us and we trim them to fit our schemes. The spirit of an age is a steamroller pressing men and ideas into a pattern of conformity. And this is what has happened with the idea of relativity. It is often true, but not always.

When we carry the idea that all things are merely relative too far we end up in disaster. Life is not possible for men without absolutes. Much of our sickness springs from a failure to come to terms with this proposition. A man says that this is true now, but it was false yesterday and it may be false tomorrow. Or this is right if I do it, but it is wrong if you do it, since it all depends on circumstances and situations. There is one standard for me and another for my enemy. This value demands my loyalty now, but a new occasion may release me from my obligation.

Such a point of view removes the foundation from religion and makes it of passing significance. For who knows but that its teaching may be irrelevant by some new advance of science? We come to doubt that there is anything eternal and nothing is "the same yesterday, today, and forever."

We are particularly susceptible to this doctrine of complete relativism today, for we live in a time of change and crisis. In a single generation we have entered the atomic age and the space age. We have watched distance shorten and size shrink. Old-fashioned ethics seem hopelessly outmoded, and individual morality appears relevant only to an age that is past. The Biblical virtues are denied in the name of modern demands and conditions. It is hard to tell whether victory or defeat are hardest on established ways and customs.

Then, added to all this, there is a powerful adversary on the march who denies the religious and ethical foundations of our civilization. For the time being at least, he is riding high and enjoying much success. Unconsciously, churches and churchmen are affected by such communist propositions as: religion is an opiate; religion is an extra; propaganda is more important than truth; and the Church should speak only of heaven, home, and mother.

In the face of all this, what shall the Christian say? Has he anything important or convincing to say? Is it true that the acids of science have eaten away his affirmations? Must we be less positive than our fathers in presenting our case? What has happened to the authority of the Scriptures and the Church? Does Jesus still speak "as one having authority"?

What I have to say about these matters is in the nature of a witness giving his testimony. Much of what I write is personal experience and conviction. I came through a period when it was assumed that Christianity must adjust itself to science if it were to survive even as an appendage. When I remember the poor little remnant of the Gospel that was to be allowed me in the nineteen twenties and thirties, it makes me sad. For I am convinced that the truth is the other way around. It is not for Christianity to adjust itself to our contemporary situation, but it is for this generation to recover the sense of the authority of God and His Word. For myself, there has never been a time when the Christian Faith shone more clearly and more authoritatively in its own light.

In the Beginning God

The man who reads his Bible is impressed by the absence of any argument for the existence of God. The Hebrews began with the assumption that God existed and that every man in possession of his normal faculties would recognize this truth.

There are two great affirmations which sum up the Bible's faith about God. The first is the opening sentence of Genesis: "In the beginning God created the heavens and the earth." Everything begins with Him and He is the great fact with

which *we* must begin. The second affirmation is found in the opening lines of Psalms 14 and 53: "The fool says in his heart, 'There is no God.' " The whole matter is disposed of with these simple statements. Atheism is foolishness and faith is wisdom. The Psalmist would not agree for one moment with the modern assumption that to deny God is sophistication and brilliance. On the contrary, he makes it clear that such talk is brutish and stupid. The thoughtful man finds God while only the shallow and ignorant fellow may express denial and doubt.

In our time we have bowed before *success in any field* as authority for all fields of human experience. In our advertising we even quote the movie actress or the athlete as having the last word about things that they may be as ignorant about as rabbits. So the man who has not read a book since *The Rover Boys* of his youth pontificates about religion. He has a faint memory of a child's storybook he read in Sunday school thirty years ago, and then talks as if that were the status of religious thinking today. The scientist whose religious ideas may be childish is listened to with awe.

For instance, some people seem to think that we are forever on the brink of a discovery that will destroy the Christian's faith in God. There is a fear expressed that man will run across something one day that will make God an outmoded concept. It is true that we have pushed the mystery of beginnings back further than our fathers did, but nothing has happened to suggest that life did not have a beginning. I cannot conceive anything in the realm of science that affects man's faith in a beginning—that the process of life was caused to get under way and to grow thereafter in a marvelous manner. We may find things about life that at present we are unaware of. But spiritual religion does not argue that life's origination had to be done a certain way or within a certain period.

As blind as the atheist, or as the Bible calls him, the fool, is the religious man who makes his faith rest on the question of *how* God created the world and how long it took. This is quite unimportant so far as faith is concerned. The more

light science sheds on this matter the better, and thus far at least the more wonderful the process seems to be. There is reflected in all our study the sign of wonder and of purpose. Nor does there appear to be any chance of new knowledge undermining the mighty spiritual foundations of the Bible.

There are some who think that sheer size disproves faith in God. Not long ago a man wrote a book about space travel and the possible discovery of other creatures more intelligent than man. He stated that this would be a shocking thing for Christianity to face. Why? Our God created the universe as well as the earth and its inhabitants. It may well be that we are not the only recipients of His concern and love. The Old Testament went far beyond the idea of a tribal god, and we who move in the stream of its influence have never considered that God had to be limited by the boundaries of our perceptions. Size and distance are beyond our imaginings, but the greatness of God goes even beyond these matters. We match the eternal God against the size and distance of things.

There is a fear in some quarters that the terrifying power in the atom puts our faith in a precarious position. Again I ask, why? This is my Father's world and He is not at the mercy of our irrational manipulations of power. I expect He has known all along that if we split the atom we would have the ability to destroy ourselves. I do not know any more about the future than the next man, and a good deal less than many. While I cannot prove these things, I believe that the ultimate decisions are not ours but His. I believe that He has something on His mind and that He has purposes which will not be prevented forever. I believe that God is not through with us yet. Indeed, the terrifying possibilities we have created for ourselves have increased my faith in God and strengthened my conviction that God is the One without Whom we cannot live. But the Bible affirmed that implication ages ago.

A good many questions have been answered by science, and we should all be grateful. It has been a benefactor, on the whole, and our life has been made better because of science.

But it has not answered the momentous, essential questions which we *must* ask because we are men. Nothing has been discovered or developed to give us new information in the realms of the *spirit.* As a matter of fact, the questions come with increased insistence in a day like this, and we only find light enough to live by, just as our fathers found it, through prayer, the reading of the Word, and worship. The increase in mental disturbances and illness does not indicate that the new age of science can solve the problems of conscience or answer the longings of the human heart. It seems to me that we are being driven to faith in God with more pressure than ever before.

Jesus Christ and Truth

One of the main stumbling blocks for modern men is the Christian insistence on the uniqueness and finality of Jesus. That He was a good man and a great teacher will cause little debate anywhere and most moderns will list Him as one of the half dozen or so greatest men. But how can one believe that at a particular time and place God spoke through one man as He never spoke before or has spoken since? How can an intelligent man regard a preacher who appeared among an obscure tribe at the eastern end of the Mediterranean Sea as an ultimate revelation?

This is one of the criticisms, often unspoken, of the Church and its ministry. I remember reading one critic who asked scornfully how an old Book could be read and talked about century after century as if it were the final truth. How can men talk about the same subject every week of their lives and keep the subject fresh and vital? There is a general mood reflected in Goethe's letter to his friend Lavater, who had written a poem in 1780 entitled "Jesus Messias." "What a narrow-minded man you are," wrote Goethe, "to suppose that your Jesus alone is important and that all other great ones count for nothing. There are many great men, many seers, many leaders."

Besides this reluctance to accept one Person as the Truth

incarnate,[1] there is a tendency to regard all religions as equal. Why should we assume that Christianity is superior to Buddhism or Islam? These, too, are world religions with millions of adherents, and they, too, claim ultimate revelations. Should we not say that all have some truth and each path leads to the same destination? We are troubled by what J. S. Whale calls "the offense of particularity."

There are a number of answers to this objection which Christian thinkers and others have set forth. One obvious point is that all men and all disciplines find truth through a particular. This is the nature and structure of human experience. We do not find truth in generalities and abstractions, but in concrete instances. Toynbee argues that this is just as true for the astronomer as it is for the theologian. I may assent to the doctrine that God is omnipresent, but until He manifests Himself in a particular moment and in a special experience the truth about God is vague and not what we could call "religious truth."

Revelation is something given, and all we can say is that it takes place here and not there; it happens now and not then. Who can explain the mystery of Israel? No one can say how they happened to be a "chosen people" and why they heard a voice while other people went their way unaware of it. All we can say is that they have survived as a people not because they believed in themselves, but because they believed in God. They represent in sharp outline the offense of particularity, but they also illuminate the truth that God is not disturbed by it as are some of our intelligentsia.

Yet we must never lose sight of the universal in the particular. The truth revealed is for all men though it must come through one Man. We are given light to live by from the experiences of one tribe who were never meant to keep it for themselves. Indeed, whenever they have tried to deny it to others they, too, have lost it. Such a people are the suffering servants, and through their sacrifices and triumphs all men have their eyes opened to the purposes and designs of God.

[1] "I am the Way, the Truth, and the Life"—John 14:6.

When we come to the doctrine of the Incarnation we are in the same general field of experience. God has revealed Himself in a Person and not through the public or in a society. What we find in Jesus has great implications for society, but the revelation is not in a nation or a race generally, but in a Man. This is a matter of faith, finally, as all our life must be. To commit one's life to Christianity brings a certainty which explanations and arguments cannot describe. The particular is no longer an offense, but an event of mystery and awe. In Jesus is to be found the necessary truth for men to live by and the saving truth for men to become conquerors of themselves and their circumstances.

Nothing has happened in modern times to change this situation. At least from my confessedly limited point of view there seems to be no new discovery that would make it necessary to change my attitude toward Jesus as the Truth. I find myself preaching the same Gospel with the same enthusiasm. My conviction is just as firm that in this Christian revelation there is something eternal. I think no word is more to the point in this matter than Professor C. H. Dodd's conclusion in *The Bible Today:*

"The Word which was spoken through the prophets of Israel and made flesh in Palestine in the first century is the same Word by which man and his world were created, which is also the Agent of final judgment upon the quick and the dead, and the Mediator of eternal life to all men. It follows that whatever is said in Scripture about God's relations with men is not to be understood in any restrictive or exclusive sense. When the Bible records that God entered into covenant with Israel, or with the Church, by which He promised them certain blessings and laid upon them certain obligations, that is solid matter of fact, verifiable and datable in history. But it does not carry the inference that the rest of mankind is outside God's covenant, incapable of receiving His blessing, and under no obligations to Him. On the contrary, we can be sure that God speaks to all men everywhere in judgment

and mercy just because He did, verifiably, so speak to His 'chosen people' in history." [2]

This, I think, takes us into the realm of paradox which the logician abhors. But when you are dealing with men and not elements, truth has a curious way of revealing a level both higher and deeper than logic. As Chesterton one time indicated, life is almost logical but not quite. There is always an untamed element within it and a wildness beyond our control.

So the Gospel is personal and social, present and future, particular and universal. But in this century, as in all centuries, Christians believe with their minds as well as with their hearts that God revealed final truth in Jesus Christ.

Jesus Christ and Realism

In the spring of 1959 the Council of Bishops of the Methodist Church met in Washington, D.C., and were invited to the White House by President Dwight Eisenhower. The president of the Council, Bishop G. Bromley Oxnam, made a brief statement at the beginning of the meeting. He pointed out that 170 years ago two bishops and two ministers of the newly organized Methodist Episcopal Church had called on President George Washington less than a month after his inauguration. The first Church to be born on American soil extended to the new President its pledge of support and offered its blessings and prayers. When President Eisenhower replied, he pointed out how simple life was then compared with the present, and how small the government was then and how large it had become now. Then he said that the more complicated our life becomes, the more important it is to keep clear our principles and purposes.

This was a very moving experience for me and I have thought about it often. Has our complicated world made it necessary to change the principles we proclaim to the world? Are we faced with the necessity of finding different hopes for our people? Have we outgrown the virtues our fathers be-

[2] C. H. Dodd, *The Bible Today* (Cambridge, England, Cambridge University Press, 1943) p. 119.

lieved in and can we now dispense with character? The answer to all these questions is negative and our task is to find the ways to maintain or rediscover, in some instances, the principles George Washington announced when the nation was born. There are some things which do not change regardless of new occasions and new duties.

Now, this is even more apparent in the case of the Bible and the teaching of Jesus. I am unable to see how the New Testament ethics can have been bypassed—rendered obsolete—by the multifarious scientific developments of modern time and their resulting exigencies. It seems to me that the present crisis makes these ethics more clearly essential than at any time in history. Indeed, it looks as if all the nonsense talked about Jesus being an idealist, or a romantic, or a sweet singer is now exploded once and for all. He stands out as the world's great Realist and the Revealer of things as they are.

I look at my own society and am sometimes almost overwhelmed by its interdependencies and its complicated organization. It now demands skills and knowledge to conduct our national and international affairs which our fathers never had. Besides, if we are not to bog down or smash our society by running wild, we must have men who are truly good and leaders who are morally disciplined. Automation is fine, but I can see no evidence that it will remove this necessity for human character. The danger is that our mechanical skill has already outrun our human and spiritual development. Jesus made it clear twenty centuries ago that our level could never rise higher than the quality of our moral living.

I am even more impressed with the truth that none of our modern achievements can, in themselves, provide adequate reasons for living. The author of the best-selling novel may commit suicide. The richest and most powerful man in the world has insomnia. The country that has the highest standard of living has the largest percentage of patients in its mental institutions. And when these people are healed, it is through the Spirit and by the direction of One whom many thought they had outgrown.

I am impressed with our international failures and scared to death by our inability to find a policy that succeeds. I have traveled about the world enough to know that it is easier to criticize our statesmen than to tell them the solutions. But it has come to me over and over again that the answers are religious. It is not just a matter of building armament and military defense. Economic help is fine, but in itself and from the wrong motives it does not accomplish much that lasts. The preacher says that Christ is the answer, and he is ridiculed for his simplicity and naïveté. But essentially he is right, and the missionary enterprise is his vindication. For in spite of our many failures as Christian churches our missionary endeavors indicate what must be done to redeem, unite, and defend the world.

I have read several studies of the Sermon on the Mount. Some have interpreted it as a collection of impossible standards that we ought to consider for the good of our imaginations. We are not to have any real hope of attaining unto them. The Sermon is regarded by some as having no universal validity and applied only to a special time and place. But one main thing the Sermon says to me is that here is a revelation of the way things are. It is a realistic setting forth of the nature of the moral universe and therefore of the only principles which can save us from destruction. It is God saying to us: "Why will ye die? Choose this way and live!"

I do not believe that scientific theories or anything we may find out about the universe in the future will change this moral framework of our life. Admittedly, this is a matter of faith. But all the evidence of human life on this planet so far leads to that conclusion and strengthens that conviction. In the Book of Second Peter the author looks forward to a time when "the heavens will be kindled and dissolved, and the elements will melt with fire." This, however, does not frighten him and he says, "But according to His promise we wait for new heavens and a new earth in which righteousness dwells" (3:13). It is the Christian affirmation that after everything physical is destroyed the Kingdom of Righteousness

will remain. And this, my readers, seems more like realistic thinking every day that I continue to live.

There is in the Christian Faith something very old and something very new. It is as old as God and as new as the morning. It is our defense against time and change. It is the stimulation for adventure and the vision of the future. For it is never merely relevant to a particular time or place. It is eternal.

BEHIND THE OPENING DOORS OF SCIENCE

BY DR. ALFRED F. HORRIGAN

Dr. Horrigan is a widely recognized metaphysician and one of the outstanding educators in the Roman Catholic Church. Biographic brief: Graduate of St. Joseph College and St. Meinrad Theol. Seminary; ordained a priest, 1940, of the Archdiocese of Louisville; M. A. and Ph. D., School of Philosophy, The Catholic University of America; assistant pastor, Cathedral of the Assumption, Louisville; head of department of philosophy, Nazareth College; part-time professor of philosophy, Ursuline College and University of Louisville; appointed, 1949, the first President of the new Bellarmine College for Men, in Louisville, where he is presently serving; named a Domestic Prelate by Pope Pius XII in 1955; filled various positions of prominence in the National Catholic Educational Association, and is today Vice-President of its College and University Department; contributor to many leading periodicals.

SOME thirty-five years ago Alfred North Whitehead wrote: "When we consider what religion is for mankind and what science is, it is no exaggeration to say that the future course of history depends upon the decision of this generation as to the relationship between them."

Reviewing these words today, most thoughtful observers probably will discover little reason to disagree. The space age has only made more significant the issues with which

religion and science jointly confront us. As we have progressed in our understanding and control of the world in which we live, we have felt ever more keenly the need for answers to the ultimate questions of our origin and destiny.

Today the old conflicts between science and religion are seldom evident in the form often seen in the past. Few men with famous names in the world of science identify themselves as public opponents of religion. There are no Galileo and Bishop Wilberforce cases.

In *The Philosophy of Physics,* published in 1936, Professor Max Planck wrote of the "considerable number of religious dogmas to which physical science has dealt a fatal blow." Statements of this sort have become increasingly infrequent with the passing years. In fact, there have been impressive incidents of a new type of positive collaboration between theologians and scientists. Work on the Dead Sea Scrolls is an example which comes to mind.

This absence of open conflict, however, between the representatives of science and those of religion can hardly be interpreted so optimistically as to suggest that all the tensions have disappeared. As one observer of the problem has commented, "Great controversies rarely die because their issues have been logically resolved; they simply fade away because their opponents lost interest in one another, often because each imagines that his side has secured a victory." The ancient suspicions may be less conspicuous, but it would be extraordinarily naïve to assume that they are dead. The conflicts are more subtle than those of the noisy debates of the past. But they remain nonetheless real and worthy of patient study by all who are concerned about the intellectual climate of our times and the grave responsibilities which the space age imposes upon us.

One must admit that some contemporary spokesmen for religion on occasion betray the lingering presence of the old misgivings about science. They exhibit a certain caution and defensiveness in their attitude towards scientific developments. There is a half-submerged suggestion that the prerogatives of religion may be threatened by overly exuberant

scientific speculations and that in the long run the spirit of science is unavoidably inimical to the spirit of faith.

On the other hand, it is clear that among men of science the old animosities still make themselves felt in at least an underground sort of way. The problems usually are not found in the form of direct contradiction between scientific hypotheses and real or alleged Scriptural teachings. They are a matter of mood and atmosphere created by certain philosophical and scientific judgments which seldom are developed in explicit form. Perhaps they often are not formalized even in the minds of the people who are influenced by them.

Upon analysis, some of the points of view creating this mood and atmosphere are found to be these:

Religion is not progressive. It has discovered no new truths in our time. In fact, its spokesmen are not able to agree on even the most basic traditional questions. It has made little contribution to human welfare. In contrast with the dynamic and exciting pattern of scientific development, it appears dull and uninspired. Its method, based as it is upon faith, is unscientific and scandalously dated.

Quite possibly the whole psychology of many men of science has been so shaped that they will find themselves impatient and ill at ease in the realm of religious matters. The scientist's bent is to challenge and question everything. Doubt and uncertainty are indispensable for him. Between the critical intelligence of the scientist and the simple faith of the believer, it is suggested, there is an unbridgeable gulf. The result may be an attitude which is more patronizing than openly hostile.

As a summary of the present state of "conflict" between science and religion, the following statement of Ernan McMullin serves very usefully: "It will be seen that the tension is due to two main factors—the past efforts of theologians to regiment science and to extend their competence considerably beyond its proper limits, and the growing 'Caesarism' of science which seems to explain everything and to make supernatural modes of thought appear hopelessly old-fashioned."

The current problems presented by this tension are serious

ones, but there is no special reason for either surprise or pessimism concerning them. For over nineteen centuries Christian thinkers have struggled with the problem of reconciling and properly defining the claims of faith and reason, revealed knowledge and ordinary human knowledge. Down through the centuries every variety of opinion on the problem has been put forward.

There always have been followers of Tertullian, who wrote in the third century: "For philosophy is the world's wisdom, the rash interpreter of the nature and the dispensations of God.... We want no curious disputation after possessing Christ Jesus, no inquisition after enjoying the Gospel." But there also have been from the earliest centuries the great Christian thinkers who have insisted that every truth, of whatever order, comes from God and will surely lead back to Him if respected and faithfully followed. St. Augustine, instead of destroying the Greek ideal of philosophical knowledge, transfigured it and placed it at the service of Christian revelation. He insisted that the powers of the intellect must be used to explore the depths of revelation. In the twelfth century the many-sided Hugh of St. Victor wrote: "I dare to assert to you that I have never despised anything which pertains to learning."

The most famous of the medieval Christian scholars, Thomas Aquinas, showed the way to the harmonious and fullest possible employment of all the resources of both faith and reason. He argued that "since grace does not destroy nature, but perfects it, it is becoming that natural reason serves faith, as the natural inclination of the will serves charity." He opposed with vigor the "double-truth" doctrine of the Averroists,[1] who maintained that it is possible for philosophical and theological "truths" to contradict one another; that is, that a proposition may be philosophically true but at the same time theologically false.

The synthesis of human and Divine knowledge confidently sought by Augustine in the fifth century and Aquinas in the

1 Followers of Averroës (ibn-Rushd) of Cordoba, chief Arab philosopher in the West.–Ed.

thirteenth unfortunately has had too few qualified advocates in modern times. The disruption and divisions of Christendom since the sixteenth century have had far-reaching intellectual effects which we just now are beginning fully to realize. For three centuries Christian thinkers generally have felt defensive and uncertain in the face of the marvelous advances of experimental science. On more than one occasion their uncertainties have led to major blunders in encounters with scientists. Even when this more unhappy extreme was avoided, the work of achieving a positive synthesis of theological and scientific truth was badly retarded.

Today the field is open, and perhaps the time is now ripe for too-long-delayed progress toward the realization of this synthesis. The rate of progress will depend upon new sympathies and more discerning attitudes on the part of scientists and theologians alike.

For example, certain spokesmen for science undoubtedly could make a major contribution to the relaxing of still-existing religion-versus-science tensions by a somewhat more modest approach towards the problem of methodology in the search for truth. It is understandable that the scientist should be impressed and enthusiastic about the overwhelming achievements of scientific method. It is unfortunate, however, that he sometimes allows his enthusiasm to betray him into believing that the method of experimental science is the only valid one for attaining the truth.

No experimental technique, it should be noted, possibly can reveal whether there is another method outside its own competence which is, or is not, capable of attaining to truth. General judgments concerning truth, its nature and attainability, involve a complete, if unexpressed, theory of ultimate reality—or, in other words, a metaphysical theory.

Perhaps the scientist could simplify many of his problems in relation to the theologian by more patient attention to the problem of method and to the fact that each discipline must use and be faithful to those methods proper to itself. One of the oldest and most harmful blunders associated on both sides with the religion-science conflict is the insistence

that the only valid method for arriving at truth is that proper to one's own craft. As Thomas Aquinas quite justifiably points out, it is a sin against intelligence to insist upon proceeding in the same fashion in essentially different areas of knowledge.

In further respect to this vitally important issue of the methods proper to theology and experimental science, Father Laurence J. McGinley, president of Fordham University, makes this pertinent observation: "The certitude of faith is not only reasonable; it is reasonably the most powerful of certitudes since its motive is infinite truth. There is a discipline in theology as truly as in science, a critically justified position, a set of tested methods to uncover truth. It is a failure in scientific reverence for truth to thrust the rationalism of the laboratory into the religious sphere. And it is a special dereliction of his high calling when the scientist ponders religion in the kindergarten phrases of his childhood recollection. Religion thus naïvely conceived is as unworthy of his attack as a science-fiction comic strip would be of his defense."

A thoughtful distinction concerning the problem of methodology also would go far in relieving misunderstandings on the subject of "progress." The enthusiastic supporter of the accomplishments of modern science (and the unwary undergraduate) may sometimes tend to scorn theology and philosophy because they discover few "new" truths and make very little real "progress."

The essential thing here is to distinguish between the type of progress which is proper to the science of phenomena and that which is proper to philosophy and theology. As Jacques Maritain [2] points out, every scientific inquiry presents two aspects, the one, a mystery, the other, a problem. The *problem* aspect dominates in empirical knowledge and in the sciences of phenomena. Here one incomplete solution is replaced by its successor. This is progress by substitution. The *mystery* aspect predominates where knowledge is mostly

2 Famous French philosopher and emeritus professor of philosophy at the Institute for Advanced Studies of Princeton University.–Ed.

ontological (dealing with "being" or existence as such), as in the philosophy of nature, metaphysics, and especially in theology. Here the intellect has to penetrate more and more deeply the same object. This is progress by deepening. Maritain writes:

"Progress by substitution is required by the sciences of phenomena, is their law, and the more perfectly they realize their type the more progress they make. But progress of this kind is not the law of wisdom. The progress of the law of wisdom is progress by an adhesion of the mind to its object and a union with it increasingly profound, progress as it were by a growing intimacy. And it therefore requires as its indispensable prerequisite a stable body of doctrine and a continuous intellectual tradition."

While the modern scientist has more than ample reason for pride in the accomplishments of his method, he surely is not lacking in motivations for humility. As one reviews the first sixty years of the twentieth century, he will find scant support for the naïve claims of nineteenth-century scientific romanticism that all problems of human happiness and welfare were to be resolved through a universal application of scientific method.

The history of our times makes tragically clear that the tremendous resources of science are in themselves indifferent to goals and values—that, like the stone ax of primitive man, they will serve sinister purposes as efficiently as they will noble and unselfish ones. The Nazis and Communists have demonstrated beyond any justification of argument that experimental science can flourish under totalitarian regimes and serve their ambitions with terrifying thoroughness. It is surely no reflection upon the true grandeur of modern science to insist that the explanation and defense of human dignity and freedom are not to be found in our laboratories.

On the other hand, it is only too obvious that today the fruitful synthesis of scientific and religious knowledge requires new insights and adjustments on the part of many representatives of religious thought. It is true, as the old saying has it, that it is not always science that speaks when scientists

talk. Unfortunately, it is not always Divine revelation that has been defended when religious spokesmen have gone forth to do battle with the scientists. Humility comes hard to theologians, as it does to scientists. Not every theologian down through the centuries has managed to write in the spirit which in the sixteenth century characterized the following statement of Robert Bellarmine concerning the Galileo controversy:

"If there were a real proof that the sun is in the centre of the universe, that the earth is in the third heaven, and that the sun does not go round the earth but the earth round the sun, then we should have to proceed with great circumspection in explaining passages of Scripture which appear to teach the contrary, and rather admit that we did not understand them than declare an opinion to be false which is proved to be true . . . "

St. Augustine pointed out some fifteen hundred years ago that the Holy Spirit did not intend the Scriptures as a means of teaching man scientific facts about the nature of the visible universe. The defenders of religion have not always distinguished themselves by careful attention to this excellent warning. If they had, the history of the whole science-religion controversy—that clumsy collision of two impatient forms of ignorance, as G. K. Chesterton called it—certainly could be rewritten.

Theologians have every right to protest the occasional presumption of the scientists in refusing to recognize methods other than their own and in putting forward claims to be the ultimate arbiters of truth. But they also have every duty to examine their consciences in regard to the manner in which they have fulfilled their own responsibilities. If in the popular and student mind the scientist is the heroic and selfless seeker of truth, the devotee of progress, and the dynamic hope of the world, and if, on the other hand, the theologian often seems by comparison dull, routine and obvious, the search for an explanation deserves careful attention.

The past and present shortcomings of scientists and the-

ologians in their encounters, however, are not the significant question of the moment. The pressing need is for an intensified and shared conviction on the part of all that truths of whatever kind are from God and are intended harmoniously to secure human happiness both in time and in eternity.

In an address to a group of university students, in 1941, Pope Pius XII pointed out that in God's school man has two textbooks. He explained:

"In the book of the universe, human reason in search of the truth studies the good things made by God; in the book of the Bible, the human intellect and goodwill search for a truth higher than reason, sublime as the intimate mystery of God, known only to Him. The school of God is the meeting place of philosophy and theology, of the Divine Word and paleontology, of the division of the light from darkness and astronomy, of the earth set in its appointed place and its rotation around the sun, of the view of God and the view of man . . ."

Ten years later, in addressing the Pontifical Academy of Science, this modern spokesman for the harmonious blending of Divine and human knowledge pursued the same theme:

"Contrary to rash statements in the past, the more true science advances, the more it discovers God, almost as though He were standing, vigilant and waiting, behind every door which science opens . . ."

As the distinguished French philosopher Etienne Gilson has written, "Science is one of the highest praises of God: the understanding of what God has made." Through scientific progress the human mind achieves a triumph over matter, brings order out of chaos. Man is thus enabled to fulfill more perfectly his essential mission of serving as the priest for all material creation. By penetrating the secrets of the universe he gives it tongue in praising its Creator.

The great achievements of contemporary science threaten in no aspect the rights of God and religion. The only problem relates to our capacity and willingness to direct the new knowledge and power of science to acceptable ends. Thomas

E. Murray, former member of the Atomic Energy Commission, most appropriately has written:

"God is no malignant spirit who planted, deep in the secret parts of the atom, forces which are essentially evil. His creation is good. It is only man's use of these forces which determines whether consequences will be good or bad. It is silly to charge the scientists with guilt for having opened these doors of discovery. What lies before and beyond these doors is the beauty and the majesty of God's creation, ordering all things strongly and sweetly. It is man, not God, who throws down the steeples and destroys the factory chimneys. What grudge can we possibly have against God's world—a world of waterfalls and rivers, of sweeping plains, of starlit evening skies, of clouds and sunsets, of hedges full of berries, thrusting up their sweetness to man's outstretched hand?"

Arguments today about conflicts between religion and science are generally pointless. They are a trivial diversion for which an hour of historic crisis can permit little time. Petty and hopelessly outdated squabbles stemming from the vanities and intellectual provincialism of either scientists or theologians become increasingly intolerable. In the exploration of space to which our age is committed and in the pursuit of the dream of peace on earth, we desperately need the total vision of all reality, of ultimate goals and proximate means, which can be had only through the harmonious blending of all truth, Divine and human.

THE SCIENCE–RELIGION CONFLICT —ITS TRUE LOCUS

BY DR. JOHN H. GERSTNER

Dr. Gerstner's brilliant work as a teacher and writer is being widely recognized and hailed in this country and abroad. He is fast becoming known as one of the present generation's most incisive thinkers, both in philosophy and theology. At present he is doing further research work at leading schools in England and Germany, and the following chapter was sent to us from Oxford University, England. Biographic brief: B. A., Westminster College; B. Th. and M. Th., Westminster Theol. Seminary; Ph. D., Harvard University; D. D., Tarkio College; after two pastorates in Pittsburgh was appointed Professor of Church History and Government at Pittsburgh–Xenia Theol. Seminary, in 1950; author of several important volumes, among them Jonathan Edwards' Works, Reasons for Faith, *and* The Theology of the Major Sects; *has written many articles and book reviews, and is Contributing Editor of* Christianity Today.

BACK in 1897, A. D. White wrote his *History of the Warfare of Science with Theology in Christendom.* The title is significant in its pointedness and candor. There has been, and still is, a conflict between some science and some Christian theology.

We note with satisfaction that when the Oxford philosopher, H. H. Price, gave his A. S. Eddington Memorial Lecture he chose the title, *Some Aspects of the Conflict between*

Science and Religion (1953). Bertrand Russell writes on *"Why I Am Not a Christian"* and the reason is largely that he sees religion as the enemy of scientific progress. The late Sigmund Freud wrote, "The more the fruits of knowledge become accessible to men, the more widespread is the decline of religious belief, at first only of the obsolete and objectionable expression of the same, then of its fundamental assumptions also. The Americans who instituted the monkey trial in Dayton have alone proved consistent." [1]

Blessed, indeed, are the peacemakers, but a peacemaker is one who effects a peace between frankly warring parties. Many create an illusion of peace by denying the reality of the war. These "intellectual noncombatants" abound in our day, but they only succeed in spreading the war to a third front—the one where the original combatants converge on them for denying that there is a war.

There are those who deny the war between science and religion by saying, in effect, that science and religion are the same thing. Removing all that is special to science and all that is the exclusive property of theology, they of course find no conflict at all. Thus C. A. Coulson in his paperback, *Science and Christian Belief* (1958), after a hopefully frank beginning ends up by finding no conflict because science calls for the use of faith, imagination and industry while religion inculcates the same. By concentrating on methods, ideally considered, and avoiding conclusions an *ersatz* peace is declared. There is no conflict between science and religion because they are so similar. John Baillie is irenic in his *Natural Science and the Spiritual Life* (1951) because it suffices for him to point out, what Whitehead and other scientists have acknowledged, that modern science owes a very great deal to medieval Christian principles of rationality. Baillie also puts much stress on the contingency principle which is of doubtful value in science and is not really a Christian principle. In any case, the peace is maintained by keeping the eye on origins and not on conclusions. So many

[1] Sigmund Freud, *The Future of an Illusion* (New York, Liveright).

recent works by scientists, but especially by religionists, abound in the pollyanna approach that it would be exhausting to enumerate them all.

Besides the false peacemaker's approach (there is no war between science and religion because they are so similar) there is the opposite tactic: there is no war because they are so dissimilar. If the number of the volumes advocating the former view is great, the number for the latter view is legion (and almost exclusively among defenders of religion). One may say that this has been the standard approach for more than a hundred and fifty years—at least since Friedrich Daniel Schleiermacher wrote his famous *Addresses on Religion for its Culture Despisers.* The German theologian attempted to show that the intelligentsia of his post-Kantian day despised religion because they supposed that it had been refuted by historical, philosophical and natural science, whereas they should not despise it because its facts did not belong to any science and were therefore incapable of refutation by it. Why? Because religion was a matter of feelings in the heart and not findings in science. Albrecht Ritschl, who influenced religion in the latter half of the nineteenth century almost as much as Schleiermacher did in the first half, emphasized the will and moral judgments in religion as Schleiermacher had stressed the feelings, but agreed perfectly with his great predecessor in keeping religion strictly out of the area of science. Suspending Christianity in the outer space of value judgments where no artillery of scientific research could ever reach it, he and his followers felt safe from all alarm.

History will probably show that what Schleiermacher and Ritschl were to their half centuries, Karl Barth has been to the present one. And although it will show significant differences in theological content, it will reveal identity in approach to the question before us. Barth is no less zealous to keep religion out of any historical or scientific laboratory than the great nineteenth-century theologians. While he may have taken his cue more from Kierkegaard than from Schleiermacher or Ritschl, whom he opposes on theological

grounds, all of these thinkers take the same position on the question before us. They end the war between science and religion by declaring that there could be none since these two disciplines are so utterly dissimilar and belong to areas incapable of influencing one another. Dr. Stewart has written an article on "The Reverent Agnosticism of Karl Barth," and the same title could describe articles on Schleiermacher, Ritschl and Kierkegaard because all abdicate claims to knowledge properly so called.

That this is a common, if not the most common, attitude among modern religionists goes without saying. Perhaps it is illustrated more easily by casual assumptions than explicit statements. Thus, for example, in *A Handbook of Christian Theology* (London, 1960), consisting of one hundred and three topical articles by almost as many distinguished modern theologians, I have noticed at least a half dozen casual assumptions of this point. To take but one example, we find Hans W. Frei in his article "Religion, Natural and Revealed" describing the nineteenth-century theological viewpoint as maintaining that " . . . Christian faith . . . is at once revelation and religion. Because it is *totally a matter of practical awareness,* this relation cannot be directly expressed in conceptual terms." Speaking of contemporary views he says, "There is agreement today that the uniqueness of revelation lies *not in a dogmatic proposition* nor in subjective spiritual certainty *but in its character as a unique historical event*" (p. 317; italics mine). To take but one other example, we note that I. T. Ramsey begins his current article "Religion and Science: A Philosopher's Approach" with these words:

"In recent days there has been a variety of attempts by various people, and not always for the same reasons, to stress not so much, or even at all, the conflict between religion and science, as their radical difference and independence. Professor John Wisdom, for example, began a notable essay on *Gods* by saying: 'The existence of God is not an experimental issue in the way it was. . . .' " [2]

[2] *Church Quarterly Review* (England), January–March, 1961, p. 72.

We must not, of course, suppose that this is a strictly *modern* approach. A classic formulation of it, for example, occurred in 1748 in David Hume's famous *Essay on Human Understanding.* In chapter ten the great Scottish skeptic-believer argues that "our most holy faith is founded on faith, not on reason." Faith, for him, was the antithesis and contradiction of reason or general experience. Because experience is irrefutably against miracle, providence, and the existence of God we must have faith. Christianity's greatest enemies are those who seek to defend it rationally and thereby destroy faith; its friends are those who refute it rationally and thereby create the need for faith.

Although most of this type of thinking comes from the theological side, there are also scientists who advocate it. After all, there are scientists who are religious and they are concerned with living in two worlds at one time. This approach seems to them a way to eat their theological cake and have it too. T. R. Miles' *Religion and the Scientific Outlook* (1959) finds religion—so long as one does not take literally, that is scientifically, such doctrines as the creation of the world and the infallibility of the man Jesus Christ, and so long as one conceives of all its positions as "parables," that is, nonhistorical, nonscientific, nonliteral teachings—quite compatible with science. As long as the lamb is willing to be eaten by the lion there need be no difference of opinion between them.

R. B. Braithwaite's *An Empiricist's View of the Nature of Religious Belief* (1955) is charming. After stating that religious propositions as such cannot be accepted because they are incapable of verification, being neither facts, hypotheses nor logical necessities, he shows what the righteous may do when the foundations are destroyed. They may think of religious beliefs as merely intentions associated with certain stories. Their being intentions is the ethical element in them and their being associated with stories, of Jesus or Buddha, gives a certain religious character to them. As no book which I have ever read, this one shows the identity of extreme sophistication and extreme naïveté. Braithwaite himself gives

the criticism of his view (that is, How can one intend what he does not know?) as devastatingly as any critic ever gave it and then proceeds to answer it with a vagueness in exact proportion to the clarity of the statement (pp. 16, 17).

There is one other class of spurious peacemaker which we must mention. Coulson and others aptly describe it as consisting of those who conceive of God as the "gap-filler." They see science as the camel which gets its nose etc. more and more in the tent until the occupant (God) is completely dispossessed. These men are ingenious at finding places in the tent where the camel's nose has not yet gotten and there they find a refuge for the owner to hide (until, alas, the ubiquitous nose finds even those secluded spots).

I feel somewhat ashamed for poking fun at these advocates of God as the great gap-filler, for many of them are desperately in earnest—but that makes the business of finding a resting place for the Infinite all the more ludicrous.

Perhaps the most moving and sympathy-arousing endeavor of this sort was made by the American atomic scientist, W. G. Pollard, in his *Chance and Providence—God's Action in a World Governed by Scientific Law* (1958). This scholar's distress at finding God shut out of His own universe by the advance of scientific knowledge seems actually to have been the turning point of his own conversion to Christianity and to have led to his entrance into the ministry. So he went in search of the holy gap. And what did he find? Quantum physics! Quantum physics shows that all is not determined as the old classical physics taught; for while, for example, exactly half of the electrons in a certain form of iodine every eight days break down into xenon there is no telling which half that will be. So there is a job left for God to do after all! There is room for God to act.

While indeterminacy has become the new twentieth-century unblazed highway for the Lord, the older nineteenth-century ways are still claimed, too. Thus we find the Oxford scholar D. Lack (*Evolutionary Theory and Christian Belief,* 1957) after maintaining that evolution has ruled out creation and external causes and other traditional insignia of deity,

bringing God in by the back door as the possible source of morality and consciousness, very much as John Stuart Mill, John Tyndal and other earlier scientists did. Bavink in *Die Natur auf dem Weg zur Religion* (1934) saw the attack on substance and cause as opening up new ways for Divine activity—somewhat as blasting rock could allow a blocked stream to flow.

But what is wrong with these approaches? The first is easy to dismiss, for if science and religion are the same thing then no one knows what he is talking about when using these two different words and no one is going to admit that. If science and religion are utterly dissimilar, or if one dwells in the land of the known and the other in the rapidly vanishing land of the unknown, then while you may choose to believe in the unknown there is no reason for doing so and no reason for not doing so. Barth may want to believe, but Bertrand Russell does not. Reinhold Niebuhr, quite incidentally, observes this arbitrariness. Kierkegaard's existentialism, he writes, "has influenced many philosophers *who have not shared his Christian faith* . . . The French existentialist, Sartre . . . 'There is no human nature,' declares Sartre, 'since there is no God to have a conception of it. Man simply *is*. . . .' [italics mine]." [3]

True enough, but why? Because the matter is utterly arbitrary and Sartre arbitrarily inclines as he does. If we can write of "The Reverent Agnosticism of Karl Barth" we can write with equal justification, or lack of it, of "The Irreverent Agnosticism of Jean-Paul Sartre, Bertrand Russell, and a host of other heroes of unfaith." Princeton's Stace is a very good example of: "I disbelieve. Help thou my belief." The whole matter is put succinctly, honestly, relevantly and most neededly, for the edification of twentieth-century theologians, by H. H. Price: "It seems to me that religious thinkers have not usually appreciated how very strong the case against them is." (*Op. cit.* p. 34)

As one last indication of the futility of this approach I note

[3] Reinhold Niebuhr, *A Handbook of Christian Theology*, p. 347.

the lament of an unbeliever in God and immortality. Commenting on Bultmann's contention that one must believe the resurrection of Christ before one can have any insight into it, G. S. Watts complains: "There is nothing in this for the disinterested inquirer; indeed, by the very fact that he is a disinterested inquirer he is disqualified from pronouncing upon it." Our professor goes on to observe the contrast between the new and the old religion: "The classical Christian efforts to establish the orthodox doctrines of God and the future life have failed [we believe he is quite mistaken in that opinion]; but there is a splendour about them, even in defeat, *which is entirely lacking in modern substitutes*" [italics ours].[4]

Having made some strictures on some recent and some historic attempts to evade the conflict between science and religion, let us now attempt to locate the problem. Where, precisely, is the area of conflict?

Let us make certain observations, negative and positive. Negatively speaking, first, there is no conflict between science and religion about the nature of things. Neither science nor religion, as such, provides any definitive view of the nature of things. We have had nominalists and realists in the Roman Catholic and in the Protestant Churches. Christians may try, but creedal Christianity has never tried, to get to the bottom of this question. Science may try too, but, as yet, has not succeeded. The same differences which we find among theologians on this subject obtain with scientists as well. The scientist Bavink is as much against the substance theory as Newton was for it; just as the theologians Austin Farrar and J. O. Buswell defend the substantial theses while the theologians Paul Tillich and William Young repudiate it. There is no conflict between the creed of Christianity and the creed of science.

Second, there is no conflict about the proximate or second causes of things. Christianity is of course interested in the way in which God brings things to pass in creation and provi-

[4] G. S. Watts, "The Church and the Psychic" in *The Hibbert Journal*, July, 1960, pp. 347 f.

dence, but it does not profess to know the precise nature of these causes. This question belongs to science, and the Church is willing to abide by the verdicts which come from that source. The possibility of conflict between some Christian theologians and some scientists may exist, but the possibility of conflict between Christianity and science does not. As far as the Church is concerned the old ditty of Pope is true, except that new "Newtons" need to be supplied:

> Nature and nature's laws lay hid in night;
> God said, Let Newton be! And all was light.

Third, just as there is no genuine conflict about the proximate causes of things because this is not the legitimate field of religion, so there is no possible conflict about the ultimate cause of things because this is not the legitimate field of science. True, scientists may have their various beliefs and disbeliefs, but science as such has neither. We shall note soon, under positive observations, that there is room for conflict on the evidence of things Divine; for, while the Divinity himself, if He be, is no subject for studies restricted to the realm of things that come to be *(natura naturans),* there well may be sharp controversy about the proofs of Divinity if these do, as indeed they do, fall in the realm of scientific research. But it is important to remember here that there can be no legitimate conflict about the nature of Divinity as such.

Fourth, there is no conflict about mere symbols, because these do not officially concern either science or religion. Modern theology abounds in myths, parables, witnesses, symbols, pointers, signs, and the like. These raise no problem. Indeed, they are invented in order to avoid problems. They are science-proof and for that reason most useful for persons who are determined to avoid the long arm of scientific law. They succeed in that unworthy aim, but, as we have shown above, at the price of escaping all definite meaning. It is not merely that the *scientists* cannot understand them, but the theologians *also* fail. Indeed, they call for a crucifixion of the intellect in order to understand them; which is the same as

to say that if you would understand you must not understand. A Unitarian theologian has recently written that our era should have this slogan: "There is no god but unreason and Kierkegaard is his prophet." The characteristic of modern Neo-orthodoxy is Brunner's famous dictum that contradiction is the hall-mark of truth.[5] This is the consequence of supposing that truth is encounter (*"Die Wahrheit ist die Begegnung"*). As we say, there can be no conflict here simply because no one knows what anyone is talking about.

Fifth, and finally, there is no conflict about the rationalizations of theologians. All the theologians who are anxious to rule reason out of the area of truth or proof or demonstration are just as anxious to afford it a place as explicator of what is received by some nonrational method. This is safe against the scientists and gratifying to the theologians. It prevents the scientist from criticizing because it does not imply a demonstrative use of reason such as science is concerned with. It is gratifying to these theologians because, though they disparage the primary use of reason, they are usually brainy people and like to use their eggheads as long as they can do so with impunity. Schleiermacher allowed reason the role of interpreting religious truth which came by way of feeling; Ritschl allowed it the role of interpreting religious truth which came by history and moral experience; Barth allows it the role of interpreting religious truth which comes by "revelation." One finds even among the Neo-Thomists, such as E. L. Mascall, the conviction that not only they but even Anselm and Aquinas never attempted to prove the existence of God but merely explicated the faith that had to be assumed at the outset. The point is that there can be no conflict in this area of rationalization because neither science nor religion in general is interested in controverting the way in which a person explicates something the truth of which he makes no attempt to prove.

Where, then, is the area of conflict? The conflict between science and Christian theology concerns the proofs of the

[5] H. Emil Brunner, *Philosophy of Religion*, 1958, p. 55.

Ultimate Cause of things and of His special revelation to mankind; in a word, it concerns "theistic proofs" and "Christian evidences." This is a real problem in the twentieth century no less than in the eighteenth. This is where Daniel enters the lions' den; where religion enters scientific territory. If there is to be any conflict it is going to emerge at this point. By the same token, if there is to be any agreement it is going to emerge at this point.

It is our persuasion, after some study of the problem, that while there may be considerable strain there is no necessary conflict even here. We admit, however, that this is a minority report in the twentieth century. It is axiomatic with scientists and theologians generally that there is hopeless conflict in this area and that science cannot lose or religion win. That is the reason for all the evasions mentioned above.

It is not our purpose in this chapter, which has restricted itself to the setting of the problem, to attempt to answer it. We trust that other chapters in this volume will do so. R. L. Mixter recently edited a book which speaks to the problem,[6] as does the Roman Catholic scholar, J. C. Fenton, in "The Case for Traditional Apologetics." [7]

In our opinion, the crux of the question is so seldom correctly stated, and evasions, conscious and unconscious, so commonly engaged in by scientists as well as religionists, that it is vitally important simply to state the true problem. If we have succeeded in our attempt we feel justified, although not one word of reconciliation has been uttered except our conviction that reconciliation will be the result of absolute candor and strict relevance on both sides.

[6] *Evolution and Christian Thought Today* (Grand Rapids, Mich., Eerdmans, 1959).

[7] *American Ecclesiastical Review*, 1959.

ROYALTY GARBED IN HUMILITY

BY DR. JOHN T. GALLOWAY

A prominent eastern clergyman and a member of the Committee on Higher Education of the Presbyterian Synod of Pennsylvania, Dr. Galloway is specially versed in subjects relating to the present symposium. Biographic brief: B. A., Muskingum College; B. D., Princeton Theological Seminary; D. D., Beaver College; served as Minister of Hobart, N. Y., Presb. church, First Presb. church of Frankfort, Ky., Roland Park church, Baltimore, and since 1948 Wayne Presb. church, in Greater Philadelphia, with three assistant ministers; moderator (presiding officer) of Philadelphia Presbytery, 1960; guest lecturer at Princeton Theol. Seminary for five years; author of numerous articles and reviews.

ONE of the perils threatening every man in every profession is the evil of pride. The modern scientist certainly has a right to entertain a feeling of satisfaction in the success of his own thought and enterprise. Indeed, from the religious point of view it may even be said that God has given him a certain glory. Whether he has conceived of his vocation in terms of his own quest for knowledge, or in terms of God's invitation to seek it, the fact is that the fruit of his toil is a very impressive, many-splendored thing.

The Scripture writer said, "It is the glory of God to conceal a thing, but the honor of kings is to search out a matter" (Prov. 25:2). Many of our scientists have been men of genius

on the quest, and when their intellectual prowess has produced new and fabulous discoveries we should recognize human royalty when we see it and proffer proper respect. Let all honor be given! What disturbs the religionist is that a few scientists in the frailty of pride have forgotten, or rejected, the concept that science can only discover what is already existing, ready to be discovered. Human exploits which are not accompanied by a spirit of humility before the glory of the Creator often result in pride which is a threat to the king and his kingdom. It is the responsibility of religion to remind those who become proficient or accomplished in any field of endeavor that all human, kingly crowns can be worn with dignity and security only in the recognition of man's position before the higher Throne of Grace.

As we confront some of the perils of modern life it may be well for us to heed another Scripture passage: "I say, through the grace given unto me, to every man that is among you, not to think of himself more highly than he ought to think, but to think soberly . . . " (Rom. 12:3). Sober thought in our day should create new questions for all of our gifted, kingly people whose accomplishments are so conspicuous and worthy of praise, and perhaps it should even produce a new uncertainty. We live in a time not only of wonderful human achievement but also of increased human anxiety.

An ancient king of Egypt had this inscription placed over the gates of the city: "I Built Pithom." Undoubtedly it was a notable feat, but who knows anything about Pithom and its king today? Did the king's pride blind him to the hazards which wrought his destruction and to the powers which brought doom to his wonderful city? Pride is doubly dangerous not only because of what it does to the heart of its host, but because it may blind him to the need for resources beyond the borders of his immediate accomplishments.

Today's scientist must seek answers in realms of human values which are outside his traditional fields of investigation. If he does not have time or inclination to do this himself, he should encourage others who have equal integrity and competence to seek such answers lest science itself be-

come the avenue of our destruction. The scientist, the same as every other man, is his brother's keeper. He cannot be indifferent to the results of his own research. In fact, the very quality of his accomplishments makes him doubly responsible. "For unto whomsoever much is given, of him shall be much required" (Luke 12:48).

The strength of his thinking and the incredible result of his explorations have lifted the scientist, in the mind of the average layman, to the realm of mystery. The scientist's first responsibility is quickly to dispel all excessive devotion on the part of the adoring public. Mr. Average Man is tempted to worship, but Mr. Scientist dare not succumb to the perils of pride. In the enjoyment of a legitimate pride let him reject its nether side with a clear renunciation of all claims to omnipotence or infallibility. Let the scientist tell the people that though his efforts have opened many doors and added new and remarkable dimensions to the areas of physical well-being, it does a man little good to be able to probe the secrets of the atom if he is unmindful of the uniqueness of his own being and the being of others. Let him tell them "loud and clear" that scientific knowledge may enable them to travel to regions yet unexplored at speeds yet untested, but that in the process they are not merely objects in motion; they are men who need to explore the possibilities of their manhood beyond the possibilities offered by physical science.

We will be satisfied if the scientist will pause to "think soberly" about the hazards which are partially of his creation, and in that pause remind the adoring populace that the boundaries of science are not all-inclusive, and that perhaps our immediate needs are in other realms. From outside the field of science let us say that while we hope that many of our best minds will continue to explore the physical world, we also wish that the scientists themselves would remind the uncommitted of the dire need for a better order of human relationships. Discovering the laws of the natural order before there is an adequate social order can only increase anxiety and perhaps even precipitate disaster. Pouring our best human resources into science in a world so involved in

evil may merely be our way of carving our names on the gates of a city about to be destroyed. There are categories of good and evil, totally outside the present scope of science, which must be understood and brought into subjection if the life of man is to survive the hazards of our day.

This brings us to the gates of religion where we believe a special revelation has been given. This revelation affirms that all nature and human nature are under the sovereign rule of the Creator. If this is true, then man's *major* concern should not be an understanding of the ground from which he has been brought forth, important as that may be, but the discovery of the will and purpose of the Creator; not geology but theology.

Believing that there is a God who made both us and the world in which we live, we should thank Him for the magnificent minds of the men who are responsible for the discoveries and developments of this scientific age. Let us not forget that science did not come to birth in a non-Christian culture, but in an environment where Christian regard for truth had reached a maturity in which such a range of interest was possible. And quickly let us pray, scientists and all men together, that equally gifted persons will be called to a study of the values God has hidden in other regions for His glory and man's honor, in order that we may come to live in a world where the abundant life is manifest in special, God-given values which no microscope, telescope or test tube of science can measure, but the reality of which, and the discovery of which, are the only true hope of our present world.

Already, in recent years, magnificent thought and enterprise have been devoted to new exploration of the higher revelation. Disdaining the old anxieties wherein nervous theologians sought to adjust their religion to each new scientific pronouncement, earnest men have carried on their exploratory work with sublime indifference to the world of natural science. But here let it be recorded in all candor that the evils of pride are no less hazardous or unbecoming when manifest in one whose major concern is the truth of religion than in one whose major concern is science.

Perhaps the next generation will see the discovery of new avenues of *rapprochement* as a new maturity is found in each discipline. New areas of overlapping concern will be approached with anticipation of better understanding as pride of accomplishment in each category is refined to the poise of proper self-respect, and the integrity of each is honored by the other. Perhaps the facts of the revealed and the discovered may then be considered more objectively and dispassionately, side by side. The conceit of exclusivism in either commitment is seldom helpful. When a scientist writes with an arrogant god-complex that he "cannot accept supernatural revelation as a way to knowledge," [1] the religionist is tempted to state that he cannot accept scientific investigation as a way to heaven. Little good is accomplished by this kind of exchange. Supercilious devotion to one's own interests is an outmoded luxury of pride which we cannot afford in this fateful day.

Dr. John E. Smith, professor of philosophy at Yale University, concludes a recent article with this word: "In the end each side [science and religion] is absolutely essential; each supplements and corrects the other by helping to save it from its own exclusiveness. Without scientific knowledge, religion could not avoid and overcome its own inherent tendency towards obscurantism and the magical outlook on life. Without religion, science would forget man, his purpose, his concrete concerns, his ultimate destiny, and run the risk of a new dogmatism which identifies with but a part of itself." [2]

Sir Julian Huxley insists that in the light of modern study "it is no longer possible to maintain that science and religion must operate in thought-tight compartments or concern separate sectors of life; they are both relevant to the whole of human existence. The religiously-minded can no longer turn their backs upon the natural world, or escape from its imperfections in a supernatural world; nor can the material-

1 Hudson Hoagland, in *Science Ponders Religion,* edited by Harold Shapley (New York, Appleton-Century-Crofts, 1961).

2 "Science and Religion," article in *Yale Scientific Magazine.*

istically-minded deny importance to spiritual experience and religious feeling." [3]

Man needs both science and religion because he is man. Why not look at our problems together? When false concepts arise and there is need for correction from either side, let the adjustments be made with great discretion and with mutual respect, in honesty and without embarrassment. We are finite creatures committed to a revelation and a quest.

We have many of the same problems in our respective areas of interest. As the scientist moves along the path of time he discovers that there are certain basic laws which do not change. His understanding of some of these laws changes, and he may discover new laws, but the basic laws themselves abide. In religion, too, we have foundation principles which we do not change with every wind of doctrine, or every time a scientist waves aloft a purportedly new-found fact. In many instances there is agreement between that which science considers basic and that which is basic in revealed religion. Let us mention but one example—what science calls the second law of thermodynamics.

This law has to do with time. It means that as time progresses heat will diminish in the universe, ultimately to the vanishing point. Using the analogy of the clock, it means that the universe is running down. More accurately, it might be described as the progressive increase of randomness—the movement toward chaos. One of the marks of this movement is what the scientist calls its irreversibility. That sounds formidable, but it simply means, as everyone knows, that time moves in one direction. In other words, you cannot throw time into reverse. H. G. Wells could do it with his time machine, but the fact is that "time marches on." As we sing: "Time like an ever rolling stream bears all its sons away."

What difference does this law make to man, scientist or otherwise? Is there a corresponding Scriptural *revelation* about time?

[3] Introduction to Teilhard de Chardin's *The Phenomenon of Man* (New York, Harper & Brothers, 1959).

In general it may be said that Scripture depicts man as resident in this space-time continuum, and yet also above it. No mere machine can think about itself or communicate value judgments to its neighbors. The record is that God breathed into the previously created nostrils the breath of life and man became a living soul. Ages afterwards John wrote about men who accepted Christ as having received power to become the sons of God, and Jesus himself had said that such men had everlasting life. Thus it is asserted in Scripture that man is no mere thing subject to the dissolution of things. And yet, he is in the world and subject to it. (Scientists and men of religious faith need to sit down together and explore the relationship of soul and body, mind and matter, of chemistry and conscience, glands and world view.) It is not strange that a great scientist like Dr. Schrödinger should seek to extend his reach beyond the normal confines of science with the statement, "We may . . . assert that physical theory in its present stage strongly suggests the indestructibility of Mind by Time." [4]

While Scripture states that man's being transcends time, it does not deny the second law of thermodynamics. Quite the contrary! In the tenth chapter of Revelation is this vision: "And the angel which I saw stand upon the sea and upon the earth lifted up his hand to heaven, and sware by Him that liveth forever and ever, who created heaven and the things that therein are, and the earth and the things that therein are, and the sea and the things that therein are, *that there should be time no longer*" (Rev. 10:5,6).

How can we avoid a dualism: "Earth to earth, ashes to ashes, dust to dust," but also "a sure and certain hope . . . "? Physically man does not escape the cold and bleak destiny of the second law of thermodynamics, but as a being he is beyond the reach of the second law.

Putting our conclusions together, perhaps we can picture the span of time as a great rainbow arch reaching from chaos to chaos. At the beginning of the arch is a segment where the

4 Erwin Schrödinger, *Mind and Matter* (Cambridge, England, Cambridge University Press) p. 87.

basic elements of the universe were developed. The next segment sees these elements arranged in the physical world. The third segment sees the fitting of living systems into this environment. The fourth segment is a very small one in which a creature called Man appears.

Immediately the question arises: If man occupies but a small segment in the arch of time, and he entered it at a certain point, where does he leave it? Where does his segment end, and from which point does the universe go on to complete randomness? In the irreversible march of time some lower forms of life have come and gone, and they can't come back. Gone are the ammonites of the Jurassic period and the lumbering dinosaurs. Dr. Blum looks at life today and concludes, "At the moment there are all too many signs that man lacks the ability to exercise the control over his own activities that may be necessary for survival." [5]

Many scientists agree with many religionists that man's days may be numbered. Gone in both realms are the dreamy-eyed utopians who pictured man as growing from knowledge to knowledge and from grace to grace until the dawn of the perfect day. Today there is a new appreciation of our Lord's parable which depicted the good and the evil growing up together until the harvest. We know from experience that as we discover new truth in science the discovery is just as likely to be turned to evil as to good. With each step forward comes new peril—and, perhaps, before long, the harvest.

Then, where are we right now? Hopefully we may acknowledge our indebtedness to science for its devotion to discovery, even to the discovery of our plight; also our ultimate dependence on resources which are not of our own devising. Science may be infinitely interesting, but it also may be swiftly and completely devastating. It will not be a cosmic accident but Divine judgment if the fabulous exploits of man, proud man, should suddenly become the instruments of total destruction.

Perhaps now, with less hesitation, we may venture to affirm

[5] H. F. Blum, *Time's Arrow and Evolution* (Princeton University Press, 1959) p. 212.

the Word which is the power of God unto salvation to everyone that believes. Perhaps we may assert with some boldness that if the study of science unfits one for the appreciation of categories beyond science, then pride has become a peril of formidable proportions. Dr. J. B. Phillips has written a book entitled *Your God Is Too Small.* Science has helped to correct this fault of our faith. May we humbly suggest that another book might well be written: "Your Science Is Too Small."

Right here let it be pointed out that even as the method of experiment has resulted in fabulous development in the traditional categories of science, so if it were extended to the claims of the Word of God new horizons of hope might be opened up in the experience of mankind. Faith—of different types, but *faith*—is required in both ventures.

The last book of the Bible says, "Behold, I make all things new. It is done. I am Alpha and Omega, the beginning and the end." And John said, "Little children, it is the last time."

If it is the last time, what is important?

RELIGIOUS FAITH IN AN AGE OF SCIENTIFIC ACHIEVEMENT

BY BISHOP IVAN LEE HOLT

Few men have held such outstanding positions of leadership both in the U.S.A. and in the world at large as Methodist Bishop Ivan Lee Holt. Biographic brief: A. B., Vanderbilt University; Ph. D., University of Chicago; D. D., Th. D. LL. D., Litt. D. from various schools; pastor of University Church, St. Louis; professor of O. T. literature, Southern Meth. University; bishop of Methodist Church since 1938; church promotion work in Latin America and China; President of Meth. Board of Pensions; past President of Federal Council of Churches; member Exec. Committee, World Alliance of Intern'l Friendship; official delegate to numerous World Conferences; organizer of church work in Far Eastern countries; widely known lecturer in U.S.A.; recipient of award of honor from Univ. of Chicago and Commonwealth of Pennsylvania for outstanding leadership in America; author of books and articles.

IF I were to place a Scripture text over this chapter I would choose I Peter 1:13 in a new translation: "Brace up your minds then, keep cool, and put your hope for good and all on the grace that is coming to you through the revelation of Jesus Christ."

As the world is threatened by another war over the Laos conflict my mind takes me back to the last serious threat of a world struggle over the Suez crisis. I was in the city of Baghdad at the time, and I went out to the site of the city of Babylon

which was once the chief city of a great totalitarian state. As Communist Russia threatened to send its military might to support Egypt if England and France did not cease their attack, I thought of the many times strong Babylonian armies had marched out of Babylon and advanced through the mountain passes of Syria to the eastern shores of the Mediterranean.

On one such march the Babylonians were advancing toward a village north of Jerusalem whose people gathered around their religious leader, Habakkuk, with the question, "Where is God?" The prophet acknowledged that doubts had come to him, and he had come to the conclusion that God was making use of the Babylonians as agents for His historic purposes. In this way he was able to hold on to his faith in God's omnipotence. Then replied the people, "You may have saved your faith in God's omnipotence, but you have lost your faith in God's righteousness. How can God use these cruel, blood-thirsty Babylonians and still be a good God?"

I believe it was John Stuart Mill who once said, "No intelligent person can at the same time believe in God's omnipotence and in His righteousness." That was the dilemma of the prophet, and he climbed the highest hill he could find to fling upward to heaven the question, "Where are You, God, when things such as we experience can go on in the world?"

The answer came from God: "The righteous man shall live by his steadfastness." The King James sentence is, "The just shall live by faith," but the other is the more accurate translation. If the time comes when you can no longer hold to your faith, hold on to it anyway! You cannot go into tomorrow's uncertainty and dangers without faith. Which is but saying that it is not the function of religion to answer all questions about God's moral government of the universe, but to give a man courage to go on in the face of questions he can never answer in his present status.

In the Laos crisis and the trouble in the Congo the Communists pose the same threat to the world they did at the

time of the attack on Suez. Fifty years ago a scholarly geographer, remarking that all people in the world live on islands, large and small, voiced his belief that if one nation ever came to control the great island mass of Europe and Asia, that nation would rule the world.

At the time the opinion made little impression because no one nation was close to that domination. We have lived to see the time when one nation (and another which agrees with it) has come close to such control. Nothing irritates the democratic nations more than the fact that Communism makes use of historic democratic phrases as it throws a life-line to new nations: liberation, rights of the average man, a better world for our children and our children's children, etc. The rivalry between Russia and the United States is professedly for political control and economic supremacy. But Bishop Gerald Kennedy has reminded us that the really great rivalry is one of faith. Not since the decade after the First World War, when Humanism challenged the Christian faith and insisted that man is sufficient without God's help, has there been such a danger to Christian faith as the materialistic atheism of Communism. As a matter of fact, the Humanism of the nineteen-twenties was also materialistic, and scientific achievement was the great goal of man's efforts. It is the same goal under materialistic atheism. It is my purpose to think of religious faith as over against the efficiency of mere scientific achievement. My religious faith is that of a Protestant.

To me Protestantism is neither protest nor negation, whatever may be true of it historically. It is reason grown courageous enough to trust and serve; it is courage which has not lost a sense of reverence and mystery in the midst of a great universe; it may resist but it can never treat with either contempt or ridicule views of faith it does not endorse.

In a recent definition of Protestantism by William L. Sullivan I find these sentences: "It is not a new form of the scribe's literal knowledge of a book. It is not the rejection of sublimity and imaginative splendor in public worship. It is rather a religion that affirms a historical foundation, and then a spiritual principle. The historic foundation is that the

Eternal has given us an actual revelation of His will in Jesus Christ, and the spiritual principle is that the service of the Eternal, after the manner of Christ, is direct, personal, immediate. A person, not a rite nor an institution, is the first principle of Protestantism.

"Just as the evolutionary process reaches its apex in an individual who lives; just as the historical process reaches its apex in a man who is not an anonymous unit in a mass, but stands erect, personal and free; so, says Protestantism, the spiritual process reaches its apex in a developed spirit which stands face to face with God. No system, no institution can be substituted for the spirit or for God. Protestantism is a religion of transfigured and glorified individuality. It is a high and exacting faith—possibly it may prove too high and exacting as it attempts to build a transfigured society on the transfigured individual. But there is a chance of triumphant life, even through pain and grief and death. The Infinite Spirit, the filial soul, the Christ as living grace and witness of the union of the two—such is Protestantism, and all disputes on texts or ordinances are nonessential compared with that."

This statement comes from the heart and mind of a very able interpreter of religion. As I ponder it, I think of the universe around me and how puny men, weighted down perhaps with many scholarly titles, have oftentimes in their talks and writings banished God from it. Shall I follow their example? Shall I rise loftily, tighten my belt, throw out my chest, whistle bravely, and proceed boldly upon life's course through a God-less world?

But that would leave my many questions unanswered, questions that just will not be "downed"!

No, indeed! Not nearly all my why's and how's and what's can be answered, but I feel certain of at least *some* things.

I feel certain that the universe is creative; it is not a dead mass; it is a living, vibrant thing and in successive ages new forms of life are ever emerging. The universe also is rational. I know there are frightful disasters, and glaring evils, and unjust sufferings, but it is easier to explain evil in a rational world than to explain good in an irrational one. Even if the

universe were a machine, no machine is set up without a mind. If the world is ruled by laws, laws require an intelligence to shape them. There is a reality that can be measured and weighed, and that can be sensed. By either approach to reality one discovers order, development, growth, reason. The universe is also productive of values. I cannot understand how a fortuitous combination of elements can produce such values as are to be found in the personality of a great spiritual or intellectual leader. The values of beauty and truth and goodness are here because they are the product of a value-producing universe. And so, the universe is certainly far different from an infinitely intricate machine, as has oftentimes been claimed. The philosophy of mechanism, with all its dogmatism, is today definitely and, let us hope, finally in the discard.

As I think of the demands made on studious men and women, including scientists, by the spirit and mind of Jesus, certain words from the Bible come to mind. First, "The fear of the Lord is the beginning of wisdom." The word "fear" here has no connotation of terror, or fright, or dread. It means reverence. He learns best who stands in reverence before the mysteries and revelations of this universe. A second verse comes to mind: "We are not the men to shrink back and be lost, but to have faith and save our souls." It reminds me of Garibaldi addressing his troops: "I know you have suffered. Before you are hard roads. Your feet will often bleed. I do not even promise victory. But if any man dares to be a patriot, let him follow me." Jesus said in somewhat different words: "If any man dares to be a Christian [and that means in scientific endeavor as well as in everyday living], let him follow Me." Another verse comes to mind: "You shall know the truth and the truth shall make you free." Not all truth do you know as of now! But those who possess the mind and spirit of Christ are adventurous, and their faith can never be static nor its expression crystallized. Knowing now in part, they hope to know more fully as the years come

and go, and they wait for a full and perfect measure of knowledge after Daybreak.

One of the most interesting discussions of the function of religion in our human progress, including scientific progress, is *The Quest of the Ages,* by A. Eustace Haydon. Religion is defined as a shared quest of the good life. Hindu idealism reads the ultimate meaning of the universe in terms of spirit and identifies the lonely individual with the universal soul. The soul of man, conscious of oneness with the divine, may live in the world undismayed by apparent tragedy and evil. As a violet or an oak tree attains perfection by yielding to the laws of nature, so man gains peace and happiness by naturalness. Another way of accepting the universe is that of determinism. A Chinese philosopher says: "Four desires control man, giving him no rest, namely, the desire for long life, the desire for reputation, the desire for dignity, the desire for wealth. They who have attained these things fear that they may lose them. They always tremble, wondering whether they will live or die. All this is because they do not understand the working of fate and believe that external things may affect them. But men who yield themselves to fate worry no longer about anything. Always contented, they enjoy an incomparable peace because they have understood that fate rules all things and nothing external has power over them." Still another view of the universe is that God is above and beyond the universe, and that His will is the efficient cause working through it. Under the shelter of His care man, in spite of his helplessness, may feel secure. The last, of course, is the Christian view.

But the old gods are all gone, in the thinking of Professor Haydon. For the query "Does God exist?" he would substitute the question, "What support does the universe give to our moral ideals?" He finds three supports: (1) the stable balance of the natural world, which makes man feel that he will survive and master the planet; (2) man's secure biological heritage, since every generation sees a new-born child as the heir of all the ages and filled with tremendous possibilities and potentialities; (3) the unfolding social environment—

values and ideals which represent the aspirations and accomplishments of untold thousands.

One must admire Professor Haydon's scholarship, his beautiful English, and his lovely spirit. But his teaching belongs to that period of man's achievement which ended in 1929. Since then it has become increasingly evident that man cannot pull himself up by his own bootstraps.

We may not find Barth a safe guide in our religious thinking, though we must admire his courage in his stand against the Hitler government. When a man has such courage his faith cannot be dismissed with a gesture. There is a growing conviction that we cannot turn to the left wing or the right wing for our theological guides; it is not because we would compromise, but because we human beings, broken and discouraged, would go forward with hope.

A story familiar to all tells how astronomers found the planet Neptune. Long before the planet was discovered the searchers of the sky were convinced there must be something where they afterwards found Neptune. Other bodies approaching that spot behaved in a peculiar way, and all bodies behaved in the same way. One could predict with certainty what would happen. Then one night the seekers found the mysterious planet in the very spot where they had expected to find it. Human souls often react, too, as if there were something in the heavens. And there is; and sooner or later they learn to identify it—or rather, Him. He draws them "with cords of love," as the prophet Hosea has it—both ordinary folk and scientists of a supreme order. And the spiritual union thus established affects all their thinking and emotions from that sacred moment on.

The Bible is the story of the human search for God and His search for us. John Hutton speaks of that long search as making smoother and clearer the windows of the soul through which men, learned and unlearned, catch the light of God. Rough was the glass, and its surface stained with splashes of earth, when the search began. One could scarcely see, and the God beyond seemed little more than a shadow. The glass was cleaned and made smoother by Isaiah and

Jeremiah and the author of Job. Then one day came One who broke through that glass to reach from us to God and to reach us from God.

One of the services which humanists of the left wing have rendered religion is the revelation of the fact that man cannot be considered significant if God be discarded. If God be discarded and the humanist follows through his philosophy he will come out as did Joseph Wood Krutch, believing that man is nothing.

It is a practically universal experience that men feel a sense of dependence; they have a haunting impression that something is wrong between themselves and Someone above them, and that, as William James said, they can right the wrongness by making the proper connections with the Higher Power. Since man came to self-consciousness on his upward way he has found himself on a great adventure. By countless experiments he has discovered certain policies that produce good results, that help him on his way, that seem to meet the essential needs of his nature. Others that proved destructive he has abandoned. He found, among other things, the value and validity of religious experience. Christianity spread rapidly over the Roman world because men were seeking an adjustment with the Higher Power which their older religions did not give them.

And now, in this age of great scientific achievement, we are like the hero in one of H. G. Wells' stories. He went to spend a night in a haunted house. To his surprise it was brilliantly lighted. The light came from candles, candles of different lengths. One burned out and then another, until he was left in darkness. Then he had to think and find courage. We may sit in darkness today, with haunting fears, but we can find courage in our faith.

When Robert Louis Stevenson was very ill his wife came to his room. He wrote until his fingers would not respond. He dictated until his voice was gone. His body was wracked by pain and fever. Cynically his wife said to him, "I suppose you will say this morning that all is well."

Stevenson looked at her, a soft glint in his eyes, and an-

swered, "Yes, my dear, I was about to say that. I refuse to make a row of medicine bottles on the shelf the horizon of my world."

In Europe communities are being established which resemble the monasteries of the Dark Ages. Off the coast of Scotland is an island from which the first missionaries set out to convert Scotland. On that island of Iona today is an earnest company of Protestant Christians who sense the urgency of this hour. In Sweden is a similar community, and in Holland there is still another. The leader of this community in Holland spoke as follows not long ago:

"We started on the way to hell two generations ago. The intellectual leaders lost faith in God. They still held on to their ethical convictions. With faith gone there came another generation which surrendered even ethical convictions. The descent continued until we reached the Concentration Camp at Dachau. We blame German Nazis for Dachau, but it would have come at the hands of others because European feet were set decades ago on the path that led to hell. Let America watch the way she goes!"

Was this witness true? One thing is sure: it was a great army, the European intellectual leaders, including philosophers and natural scientists, who had lost faith in God. And other leaders, and then the masses, soon followed. If today you think the darkness is settling, remember the Light that never fails and that can dispel the darkness—through your faith.

Again the steady, urgent voice of the Apostle Peter sounds: "Brace up your minds then, keep cool, and put your hope for good and all on the grace that is coming to you through the revelation of Jesus Christ."

A PRIME INSTANCE WHERE SCIENCE NEEDS RELIGION

BY DR. BERNARDINE BONANSEA

The writer of the following chapter, a member of the Franciscan Order and a priest of the Roman Catholic Church, has gained an excellent reputation both as a theologian and a philosopher. Biographic brief: M. A., Ph. D., The Catholic University of America; formerly Professor of Philosophy, Siena College, Loudonville, N. Y.; presently Professor of Philosophy of Religion and Ethics, The Catholic University of America, Washington, D. C.; author of several publications in the field of Scholastic and Renaissance philosophy; member of American Catholic Philosophical Association and Renaissance Society of America.

NUMEROUS proofs can be cited to show that science alone cannot account for the existence of the universe. One of those proofs is related to the doctrine of creation.

No doubt the question has frequently arisen in the minds of many men: Will scientists ever be able to produce *factual evidence* against the doctrine of creation? This question is liable to arise in men who are well educated but lack a sound philosophical and theological foundation. They perhaps observe with bewilderment and awe the gigantic strides that science is making in its march towards the exploration of the secrets of the universe. Fear may run through their minds that the growing wealth of scientific discoveries in the fields of physics, astronomy, and astrophysics may some day lead

scholars to believe that the creationist theory is outmoded and can no longer be accepted. This would be tantamount to saying that a conflict (struggle of incompatibles) is possible between science and religion, reason and faith. We intend to show in this chapter that fear of such a conflict is absolutely groundless. This will be done in separate steps, the first of which is the exact definition of the notion of creation.

Creation may be defined as the production of something from absolutely nothing that is pre-existent. Every production is of course the production of something that as such did not exist before. But in creation we have a more basic and radical kind of production, inasmuch as something is made from no pre-existent substance, element or principle whatsoever that might serve as a material cause for the new being that comes into existence. Creation is the production of a thing in its totality, or, to give a more profound philosophical definition, creation is the production of a being precisely as a being. For a better grasp of the meaning of creation a few observations are in order.

When we say that in creation a being is produced from absolutely nothing pre-existing we do not mean that prior to the existence of the thing created, or to the sum total of created things that make up the universe, there was absolute nothingness, and then, all of a sudden and in some inexplicable way, beings emerged into existence. This is a false notion that makes creation even more mysterious than it is in reality. Furthermore, this notion is in direct contradiction to one of the most fundamental principles of reason, namely, that for every effect there must be a corresponding cause. If this is true in the order of change or becoming, it is much more so in the existential order, where the emergence into existence of being itself is to be explained.

Creation demands by its very nature a pre-existing efficient cause. Moreover, this cause can only be a being endowed with infinite power, for only such a being can bridge the gap between nonexistence and existence. If we sometimes speak of man as creator, as in the case of a poet or artist, we use the term "creator" analogically. Strictly speaking, man does not

create. Even in his greatest productions he makes use of pre-existing material, such as canvas, a block of marble, or even words and ideas that are only possible and meaningful in terms of some pre-existing reality.

This affords us opportunity to clarify the peculiar type of production that is proper to creation. Contrary to popular belief, creation is not a process involving change or becoming. As a matter of fact, it is not a process at all. To think of creation as a succession in which an actual being replaces the same being conceived as non-existing is pure fiction. No succession is possible where there is nothing to succeed but only the emergence into existence of an entirely new being. This is a most important point that must be kept in mind in order to pass judgment, as we shall presently do, on the scientist's competence in discussing creation.

Just as creation cannot be thought of in terms of change or becoming, so all spatial or temporal imagery should be removed from its notion. It is a fact of common experience that when we think of creation we are likely to imagine an infinitely extended space into which the world is placed by the creative act of God. Philosophically speaking, this is a wrong notion of creation, for no space is conceivable apart from the universe of created things. All spatial determinations are therefore relative to the existing world. The world as a whole does not occupy a place, since there is no other material being to which it could be related.

Likewise, we usually imagine the world as coming into existence at a certain moment of time, as if before creation took place there would have been a time in which God alone existed. Imagination of this kind is wrong on several counts.

First, there was no time before creation, for time is the measure of motion in a changeable being, and before creation there was no such being. Time, like space, is relative to creation. An infinite duration apart from changeable beings is a fiction similar to that of an infinite vacuum. Hence, to use an expression of St. Augustine, the world was not created in time, but *with* time. That is why it is meaningless to ask at what precise instant the world was created, or whether crea-

tion could have been anticipated or postponed. The world could have existed longer than it actually has, but could not have been created except in the first moment of time, since world and time are co-extensive.

Secondly, in creating the world God did not, as it were, come out of an eternal rest or inactivity, for the creative act of God is identical with the Divine essence, and is therefore co-eternal with it. This is due to God's absolute simplicity, an attribute that belongs to God on account of His supreme perfection. Accordingly, there was no time (which we have already shown to be co-extensive with the world) in which God was not a Creator. To quote St. Augustine again: "If there was no time before heaven and earth, why do they ask what You [God] did then? There was no 'then' where there was no time. . . . At no time, therefore, did You do nothing, since You have made time itself." [1]

Thirdly, to say that *before* creation there was nothing, or that creation was *after* nothing, is not correct. The reason is that *nothing,* as previously stated, cannot be the term of any succession, and succession is a necessary element for the notion of time. Hence it is wrong to speak of creation as though it implied a temporal succession from nothingness into being.

As can be readily seen, the doctrine of creation from nothing is not easy to understand. Furthermore, it is questionable whether human reason would have attained to this doctrine without the aid of revelation. Apparently neither Plato nor Aristotle, nor any other philosopher prior to the Judaeo-Christian revelation, was able to conceive the notion of creation in the sense that has just been explained. This should not surprise anyone who has but a little knowledge of the history of philosophy. Indeed, even after the Christian revelation there are still many philosophers who refuse to accept the doctrine of creation from nothing on the claim that it is absurd and contradictory. It is not our concern here to show that the creationist theory, far from being contradictory, is the only reasonable solution of the problem of

[1] Cf. *The Confessions of St. Augustine,* Bk. XI, ch. 13; Bk. XIV, ch. 17.

the origin of things. Such proof belongs to the field of philosophy. Instead, we shall turn to positive science and examine its claim to solve the problem at issue. More specifically, we shall see whether a scientist, speaking in the name of physical science alone, can ever expect to unveil the "mystery" of the origin of the cosmos, and whether his report could ever be interpreted as a refutation of the creationist theory.

Positive or empirical science is that branch of knowledge which is concerned with phenomena and their immediate causes. It includes physics, chemistry, biology, astronomy, astrophysics, radio astronomy, and the like. The only method used in positive science is the experimental method, no matter whether its tool is a most refined microscope or the newly perfected radiotelescope. What does not fall within the realm of sensible experience is not an empirical datum and cannot constitute the object of empirical investigation. Thus understood, positive science has definite limits which the scientist himself implicitly admits, inasmuch as his criterion for the evaluation of a scientific theory is the amount of empirical observation that goes to support it. Obviously, this is not an arbitrary limitation, but one that is imposed by the very nature of positive science and the rigorous method that the scientist sets for himself in his inquiry.

Keeping this in mind, we shall be in a position to evaluate the statements of those who object to the doctrine of creation on the ground that it is unscientific, unnecessary, and contrary to reason. These are statements that reflect a widespread attitude of mind among many scientists as well as among many others who are the unfortunate victims of a purely positivistic approach to reality. Hence they deserve most careful consideration.

It is our contention that the doctrine of creation is completely beyond the reach of positive science, and that any rejection of it in the name of science is inconsistent and fallacious.

As previously stated, creation is the production of something from no pre-existent matter or element; it is the emergence into existence of a being that previously did not

exist except as an idea in the mind of God. It is clear, then, that when a scientist applies his tools to the study of the entire cosmos or any part of it, he already has before himself the effect of creation, not creation itself, or the creative act, which is a purely spiritual act of the same nature as the Author of creation. Not being a process, creation admits of no succeeding phases or moments which could form the basis for a scientific investigation.

It is true that the whole of creation did not have to take place in one single moment, since neither reason nor revelation tells us that God must create all things at one time. Actually, according to traditional Christian teaching, a soul is created each time a human being comes into existence. On purely rational grounds, the "steady-state" theory of a continuous creation of matter has, therefore, a degree of probability equal to the theory of an evolving universe, or "big bang" theory, according to which all matter was created in one single event. As has been observed, "by spreading out creation in time and space, there is no reduction in the mystery, since multiplication of the occasions of creation as contrasted with the single unique event leaves it open to exactly the same objections [from the purely scientific viewpoint] as the latter." [2] The need for an explanation of the sudden appearance of matter out of nothing remains basically the same in both cosmological theories, even though revelation, as well as scientific evidence, seems to favor the theory of an evolving universe. The existence of the universe is what is to be explained, and this is not a scientific but a philosophical problem. Science may tell us *what* the world is once the world has been made, but not *how* it came about to be, since this is not a problem whose answer is subject to empirical verification.

To hold, as some scientists speaking as philosophers are wont to do, that matter is eternal and needs no creator is

2 Dr. Milton K. Munitz, "Creation and the 'New' Cosmology," in *The British Journal for the Philosophy of Science*, V, 1954, p. 34; quoted by E. L. Mascall, *Christian Theology and Natural Science*, Longmans, Green and Co., 1957, p. 157.

not to solve the problem of existence but rather to confuse the issue. An eternal matter—if eternal matter is possible, and this is not the business of science to decide—is no better explanation than a matter existing in time. Our problem is not one of duration, which is a pure accidentality, but one of *being*. To use a popular analogy, just as ten thousand idiots will never make a wise man, so also, no matter how far in the past we extend the existence of the cosmos, we will always have to face the same basic difficulty: How is it possible for the world to exist? Existence, in effect, is not part of its nature, as evidenced by the fact that without any contradiction I can conceive the world as non-existing. An eternal matter is therefore an eternally insufficient being which demands an eternal cause for its existence.

Furthermore, matter that evolves into life, and even to the high level of intellective and conscious life, by blind mechanical forces and independently of any extrinsic agent, as the upholders of materialistic evolutionism teach, is a very refined and mysterious matter indeed! Yet, those very philosophers and scientists who call into question the doctrine of creation as a gratuitous doctrine do not feel embarrassed at all to proclaim the absurdity of a self-existent and self-evolving matter, as though matter were a kind of demigod, if not God himself.

Let us make it clear that we are not opposed to the theory of evolution, the value and extension of which rest on the amount of scientific evidence that goes to support it. Our contention is that evolution is not self-explanatory and that it demands a cause. That cause cannot be matter, which is itself in need of an explanation and is subject to the laws of evolution. It must therefore be a superior and supremely intelligent being which is above matter and its laws and, in the last analysis, the cause and creator of all existing things. This is the teaching both of Divine revelation and of sound philosophy. Against it the attacks of science are absolutely groundless.

If physical science can lay no claim to the doctrine of creation, which is purely a philosophical and theological

issue, can we say that scientific discoveries are completely irrelevant to the problem of the origin of things? To put it more bluntly, can we say that physical sciences know nothing of creation and that their findings have no bearing whatsoever on the creationist theory? To hold this view is not to do justice to science. Moreover, it is to introduce an unjustifiable dichotomy (division) between science and religion, as well as between science and philosophy. Such dichotomy has no reason to exist, since both science and religion are concerned with truth, and truth is one. As to the special question of creation, it must be said not only that there is not, and cannot be, any schism or antagonism between science and religion, but that science is favorable to the creationist theory.

Indeed, the second law of thermodynamics (heat energy), better known as the law of entropy, states that the amount of useful energy in the universe is constantly diminishing. This is due to a continuous flow of heat from warmer to colder bodies, without any possibility of a spontaneous reversal of the process. Thus the time must inevitably come when the energy of heat will be equally diffused throughout the entire universe in the form of potential or useless energy. This energy will never become useful again because of the uniformity of temperature among the bodies; for it is only when heat passes from a body of higher temperature to one of lower temperature that work is done. As a result, not only life but all movement will be impossible. This shows that energy and movement do not necessarily belong to matter. If they did, the movement of cosmic matter could never come to a standstill.

Now, if energy does not belong to matter necessarily, and yet on the other hand cannot produce itself, it is logical to conclude that it is imparted to matter by an external agent. Likewise, if movement has to come to an end, it must also have had a beginning. Otherwise the amount of useful energy, which is by assumption limited, would have long been exhausted, and no activity in the world would be

possible at this moment. Physical science, then, seems to support the theory of a limited duration of the world, and consequently of the world's dependence on an external cause, a cause that philosophy and theology prove to be God.

It is true that science has not yet established whether the law of entropy is valid for the entire universe, since much of the cosmos remains to be explored. There is, however, a strong presumption that the physical laws which hold throughout the large portion of the universe known to us are equally valid in other parts that are still unknown but have, in all probability, the same basic nature and characteristics. Here is one area in which astrophysics and radio astronomy may make a definite contribution to our scientific knowledge, even though the present writer cannot share the excessive optimism of a well-known scientist who stated only recently that radio astronomy is "man's latest hope to probe the mystery of the origin of the cosmos." [3]

With the aid of other newly developed physical sciences, radio astronomy may rightly expect to add many achievements to those already realized in its as yet comparatively short history. It is not unlikely that in his unrestrained yet legitimate ambition to unlock the secrets of the universe, man will reach out with more and more perfected instruments into the almost limitless dimensions of space and acquire the knowledge of the exact magnitude of the world we live in. He may even be able to give a fairly accurate account of the multiphase process that led to the formation of our planets, the stars, and the giant galaxies that make up the universe. But physical science alone will never be able to solve the problem of the birth of the universe, simply because, it is worth repeating, the problem of existence is a metaphysical and theological problem, not a scientific one.

We may rightly conclude that the doctrine of creation, and religion in general, have nothing to fear from science. To quote Newman's words: "Nature and grace, reason and reve-

[3] A. B. C. Lovell, "Adventures of the Mind: Listening to the Universe," *The Saturday Evening Post*, Oct. 15, 1960, p. 40.

lation, come from the same Divine Author, whose works cannot contradict each other." [4]

One of the most formidable temptations of contemporary scientists is that of erecting a proud citadel, a modern Tower of Babel, as a challenge of human intelligence to the Divine Creator. But "happy is the man," we can say with the late Pope Pius XII, "who can read in the stars the message they contain, a message of power commensurate with Him who has written it, worthy of rewarding the seeker for his tenacity and skill, but inviting him also to recognize the One who gives truth and life, and makes His dwelling in the hearts of those who adore Him and love Him." [5]

[4] John Henry Cardinal Newman, *The Idea of a University* (new ed.), Longmans, Green and Co., 1947, p. 194.

[5] From "Address of Pope Pius XII to an Astronomical Conference Sponsored by the Pontifical Academy of Science," May 20, 1957. *Cf.* "The Heavens and the Glory of God," in *The Pope Speaks* (Washington, D.C., Catholic University of America Press), vol. 4, p. 163.

DOES SCIENCE LEAVE ROOM FOR GOD?

BY DR. ERIC CHARLES RUST

Formerly an atomic scientist, and now a widely known philosopher and theologian, Dr. Rust can rightfully lay claim to both depth and versatility of thought. Biographic brief: M. A., M. Sc., London and Oxford Universities, England, with first class honors; Associate of Royal College of Science; holder of Diploma of Imperial College of Science and Technology (England); B. D., Oxford University; Litt. D., University of Richmond; Professor of Philosophical Theology, University of Leeds, England; ordained a Baptist minister; Professor of Christian Apologetics, and later Professor of Christian Philosophy, both at Southern Baptist Theol. Seminary, Louisville, Ky., since 1953; special lecturer in England and the U.S.A. at numerous institutions; holder of many awards and prizes; author of scientific-theological books; contributor of many articles and reviews to scholarly journals.

WE live in an age when modern science has become the universal provider at the material level. In practical life men have learned to look to medicine and psychiatry for a healing which once sent them to religion and prayer. Agricultural methods and world communications have removed the necessity of famine. The luxuries of one generation have become the necessities of the next.

But technological achievement has made possible for man a satisfaction of his basic material needs which has often

covered up the more basic spiritual needs. The Marxist description of religion as the opiate of the people is partly true at this point. Pie in the sky when you die has in part been used as a substitute for pie here, and people have been drugged into a quiescent acceptance of bad material conditions and social injustice by the promise of compensation in heaven.

Yet even when pie is provided on earth man, deep down, remains religious. Only, the deeper and spiritual needs of his soul usually are not met, and his material achievements can be so misdirected by the absence of spiritual values and objectives that they may bring about his own doom. The looming shadow of the hydrogen bomb is a reminder that scientific achievement is not enough. Man needs God.

The fact that has to be faced, however, is that material values have taken over, that secularism and materialism are in the ascendant. Man is living today for position and the possessions that position can secure. He is cluttering up his life with *things*. Every method of hidden persuasion that psychological advertisement can devise is seeking by radio, television and magazine to convince him that his life consists in the abundance of things that he possesses.

This is not to belittle science. In all this, science as the investigation of the created and material order is a legitimate and highly praiseworthy line of inquiry. It is in keeping with the Divine image in man. For was not man told to subdue the earth and have dominion over it? The tragedy is that the instrument so placed in man's hands is used for man's glory and not for the glory of God.

Dr. W. R. Maltby, the British Methodist, once said that if he were drowning in a river he would rather see on the bank a burglar who could swim than a bishop who could not. For, with the best will in the world, the bishop would plunge into the water, gaiters and all, and just drown with him, whereas the burglar would at least rescue him, even if he also relieved him of his wallet. It is a bad analogy to liken science to a burglar, and yet the point is made. Modern science, with all its achievements, is a necessity in our world, but so also is

religion. Science without faith in God may be our doom—certainly not our salvation! As we build up a barrier of material things and fix our eyes upon it, we seem to be banishing God from His world. The "absence of God" is one of the significant elements in our present situation, as Dietrich Bonhoeffer pointed out, but the very seeming absence may yet disclose His presence as the darkness of judgment settles down upon us.

At the theoretical level the issue has arisen in another way. Our understanding of our world has developed far beyond the three-tier universe of Biblical thought, with its flat earth, its dome-like heaven resting on the mountains at the earth's rim, its subterranean cavern in which the spirits of the departed dwelt, and the all-embracing deep in which it floated. From Ptolemy's universe with the earth as center and all the heavenly bodies moving around it, and the sun-centered universe of Copernicus, Kepler, Galileo and Newton, we have moved into a picture of the world that staggers our imagination. The infinite, expanding universe of modern man would leave no space for God and heaven. The God of the Hebrews dwelt in His palace above the dome of heaven; the God of the Middle Ages dwelt in the heavenly realm beyond the celestial spheres and the fixed stars; the God of Newtonian physics could still have a place beyond the realm of the heavenly bodies. But today, speaking with all due reverence, the housing problem has arisen with regard to God. We have to rethink our understanding of the nature of God and of His creative and sustaining relationship to an infinite universe. Science actually seems to be banishing God from His world.

In the heyday of Newtonian physics, of the Enlightenment and its aftermath in the last century, this was perhaps more serious than at the present time, considering the level of scientific law then obtaining and its determinism. Deistic ideas reigned supreme, if religion was given any place at all. God was regarded as at best an absentee deity who had started the universe going on its rails of scientific law and who would not intervene in the course of its progress. Hence miracle

and revelation were explained away as contradicting the regnant view of the laws of nature, while man's freedom was either regarded as illusory or as an unwelcome phenomenon. At the worst, this view rejected God altogether as an unnecessary hypothesis. The French scientist Laplace could declare that given the state of the universe at any point in time and a knowledge of its basic laws, he could determine all its future states with complete accuracy. God was banished from His world.

Today we are not dealing with such a dogmatic determinism. Our view of scientific law has changed. No longer do we seek for mechanical models on the basis of which we can explain the universe. Indeed, the ideas of mechanistic causality have receded into the background. Scientific law is no longer regarded as the deterministic bedrock of the universe, and causal explanation is no longer dominant. The scientist *qua* scientist has become much more positivistic [limiting himself to definitely knowable things; excluding all theorizing]. Recognizing the empirical [experimental] basis of most of his laws, he is prepared to acknowledge that the final product can offer no more certainty than the aggregation of particulars from which he starts. Hence scientific laws are of the nature of statistical averages, like the life tables of an insurance company. They describe how, on the whole, we may expect nature to behave. They are descriptions of how the natural world will *probably* behave, but they do not declare how it *must* behave. They describe the probabilities but not the certainties. Determinism is replaced by probability.

This does not mean that the scientist would normally expect nature to behave otherwise than in its regular way, for the probability is high. Yet, in the microscopic world of the atom we face a basic, indeterminate and probability factor which challenges the rigid determinism of the past. Scientific laws no longer explain; they describe. A new kind of mathematics is emerging which no longer is concerned with the deterministic logic of the classical period but with statistics and probabilities. The road is more open for a belief in miracle

and providence and for the acceptance of the reality of human freedom.

In these days we are becoming more aware of the nature and limitations of scientific method. It is true that a certain brand of scientism and naturalism is continually lifting its head, contending that the scientific approach to reality is the only way of knowing. But increasingly the validity of this position is being called in question.

Let us briefly summarize the scientific approach to the world. The scientist approaches nature empirically (experimentally), depending upon the evidence of sense observation. Yet there are certain presuppositions which he makes before he starts.

One presupposition is a fundamental belief in the rationality and coherence of the universe. He believes that the world is intelligible and that it can be apprehended as a rational whole by the human mind. One root of this presupposition lies in the realm of Greek philosophy. The other is to be found in the Christian belief in creation. If God is a self-existent and wise Creator, then the universe will manifest His wisdom. Further, man cannot find the clue to the structure of the universe in his own reason, for he is a finite creature and he does not participate in the Divine mind. He is not even a mere spark of the Divine mind. But he is created in the Divine image, with a capacity to share in God's thoughts. He apprehends them through the works in which they are expressed. Hence the empirical approach to nature is consonant with the Christian understanding of man and creation. The first great classical scientists were themselves devout Christians who believed that, in their scientific investigations, they were rethinking the thoughts of God.

Another presupposition of science is that the ordering of the universe is mathematically based and can best be expressed in the language of mathematical thought. Here we come to another characteristic element in the scientific approach to reality, namely a concern with the universal rather than the particular. The scientist is concerned with what things of the same kind and events of the same type have in

common. He looks for universal characters and relations, and is concerned with the particular thing or event only insofar as it illustrates such universal characteristics. We have expressed this earlier by saying that he looks for the regularities in nature. The unique slips through the net of his investigation. But furthermore, he seeks to be thoroughly objective and to eliminate as far as possible any subjective peculiarities.

Actually, however, the subjective element remains in the presuppositions from which he begins. Many positivistic scientists recognize this. So much so that P. Brightman, the Harvard scientist, holds that the scientific world is largely a product of the scientific method of investigation. It is the scientist, he asserts, who constructs his world by his own subjective approach.

There is a large element of truth here. Instruments do determine to some degree the world which science finds. Yet the fact that scientists agree about their methods and instruments gives a degree of objectivity to their experimental results. Granted the premises and the basic methodological approach, the results follow.

Now, such agreement and objectivity imply necessarily communicability. The results must be communicable, and the most perfect medium for such communication is mathematical. Hence the scientist is increasingly concerned with common properties that can be measured. As a result there is an increasing tendency to reductionism—to reducing. Biology is reduced to the level of biophysics and biochemistry. Psychology takes on the complexion of behaviorism. Statistical mathematics plays an increasingly important part in the biological and psychological sciences.

This, however, means that the scientist misses the other aspects of nature, of man and the world which pass through the mesh of his net. Color and beauty are dissolved into wavelengths, music and harmony into frequencies. The spiritual values of life have no place in his scheme of things. The song is taken from the birds, the beauty from the rose, and the

mysterious inner nature of individual man remains impervious to his approach. John Oman once said that the child and poet are nearer to reality than the scientist with his abstractions. Generalization and abstraction are methods by which man seeks to conceptualize reality, order it in his thinking, control and direct it. But the scientist is not *involved* in his world, thrilling and responding to it like the poet. Furthermore, the invisible reality which is God cannot be measured and observed. So, most of all, the religious man in his numinous response to the mystery behind the universe is nearer to the heart of reality than the scientist with all his observation.

We see this even at the level of human personality. The scientific approach to man ignores the individual except as an example of general principles. The scientist analyzes man chemically and biologically. He knows his chemical constituents, the structure of his living cells, the formations of his hereditary genes and chromosomes. He can investigate his physiological and anatomical structure and determine his psychological makeup. But in all such investigations the mysterious inner side of the individual man, his unique ego with its freedom, the core of his personality, remains unexplored. Lord Eddington once remarked that presumably the scientist thinks that his wife is a rather elaborate differential equation, yet if he is a wise man he will not obtrude this view in their domestic affairs. For man is not known so long as he is treated as an object to be ordered into categories and arranged in a card index file of ideas. Man is known only as through the outer façade with which science deals, and which it objectifies, there is a disclosure of the innermost mystery or person. This takes place, not when we treat the other as an "it," but when we encounter him as a "thou," with whom we can enter into a mutual relationship of commitment and trust. Such a relationship is only possible when there is a word of revelation and when inner disclosure takes place through verbal communication. Such a communication awakens a response of sympathy and trust, and thus opens a

way to a sympathetic and imaginative understanding of the other through the medium of the words of disclosure.

The truth is that the whole universe has an inner side of which we become most aware at the human level. Such an awareness reaches its most intense form at the point of human self-consciousness. As Augustine saw, here, in his own self-awareness, man becomes intensely conscious of his own inner life. It is because of this—with its consciousness of both freedom and responsibility—that we are able to respond in trust and commitment to the words of another person and become involved with another "thou." Out of our own self-awareness and through the communicating words of disclosure we can enter into the mystery of the other's personality. We learn to know through revelation and commitment, through sympathy and trust, through a dynamic decision in which we become actively involved with the other.

It is to this level that our knowledge of God belongs, and such knowledge is not open to scientific formulation. It belongs to the level of the will, of decision and commitment, of love and trust. Even at the point of self-consciousness we are aware of the inner deeps of our being, of the Divine Other who is beyond us and yet meets us in the deeps of our spirit. Our very sense of creatureliness and finitude carries with it the awareness of the all-embracing Unconditioned and Infinite. Our awareness of responsibility has as its concomitant the awareness of the claims of the Absolute Other. To know ourselves is to know God, even if, in our sin, we refuse to acknowledge and recognize Him. Men's religions, whether they take the forms of idolatry or of pantheism, point to the fact that man cannot escape God, even though he seeks to make Him into some image borrowed from the created order. Men's moral systems in all their diversity point to some transcendent claim which men cannot avoid.

Yet when we turn our back on God we do not know Him spiritually and redemptively as He confronts us in the deeps of our own personal self-consciousness. Marcel has pointed to the difference between problem and mystery. A problem

can be solved by logical reasoning and empirical investigation, and it is with problems that science deals. Problems arise when we turn reality into an object to be analyzed and carved up. But mystery remains mystery even when we understand some of its meaning. We cannot solve it, unless we turn it into an object and treat it as a problem. But even then we never really understand it. A mystery must disclose itself to us. To understand it we have to become involved with it and live in it. Thereby it becomes a living reality with an inner aspect which we can grasp by love and sympathy only as it chooses to make itself known to us.

This is true of persons, and it is still more true of God. God is known only as He chooses to disclose himself to us. He wills to be known in certain historical events—in the calling of a slave people out of Egypt, in the words of judgment and promise through the prophets, in the incarnation of His Son, in the presence of the Holy Spirit in the life of the Church. He has tied himself to the "scandal" of particularity. Man cannot argue up to God and search Him out by reason. God will not be treated as an idea at the end of an argument, as a first cause to explain the beginning of a cosmological process, as an explanatory idea to fill the gaps in the evolutionary movement.

God is present everywhere in the order of nature, in the movement of history, and in the deeps of our own self-consciousness. But He has chosen to make himself known to us in a way that requires trust and commitment. He has spoken a saving and redeeming word to us in a life that was lived, a death that was died, and the glory of an empty tomb. It is as we respond in faith to His word of love and grace in Jesus that our eyes are opened and we become sure of Him. But let us note that such knowledge comes through trust and involvement. He that doeth the will shall know. As we live with Him and commit our lives to Him, He discloses to us His own innermost nature of love and His gracious purpose for our lives.

With this inner side of the universe, this hiddenness of

God behind His creatures, science is powerless to deal. The way of empirical observation and technical reason cannot penetrate to the *depths* of reality. Here revelation and faith belong, and concerning these science finally has nothing to say.

On the basis of the modern scientific preoccupation with dimensions, some thinkers seek a dimensional analogy at this point. There is an inner and eternal dimension to our being by which we are related to God and which is opened to us, as forgiven sinners, in Jesus Christ. This certainly means that we have to think of God in a far greater way than in the days of more limited cosmologies. God is He to whom all dimensions are open, for He is their Creator and the omnipresent reality within them. St. Paul's quotation of the Stoic lines, "In Him we live and move and have our being," is perhaps the best description of what we are trying to say. An infinite universe demands an infinite God. As Creator, God has given to us our infinite space in which to live, to exercise our freedom, and to respond to His grace. But our space and all other spaces which He may have created and of which we may be unaware are sustained by and embraced within His sustaining Being which is wise and by His gracious personal will.

The fact that our minds are able to understand in science the process of nature out of which they have creatively evolved is, at least, a reminder that Mind must have been in and beyond the process from the commencement. Yet we do not believe in God for this reason. Many scientists may support the ideas of a cosmic first principle, a prime mover, and a rational designer. But many other scientists do not. In the end our faith in God is grounded in His own entrance into the process, in the Word made flesh who has opened up the dimension of eternity within our souls. The Apostle Paul declares that in Christ is present and incarnated the eternal integrative and creative principle of the universe. He is the personal Son through Whom all things have come into being, in Whom all things will be finally gathered up, and in Whom

all things now cohere. John the Evangelist says the same about the Word who became flesh.

What we need is a truly high Christology—the belief that the meaning of the whole universe has become personally present in Jesus Christ. In Him the world begins to fall into pattern. When, in faith, we commit ourselves to Him, our scientific and technical reason, our philosophical speculations, our understanding of nature and history, fall into their rightful place and take the right direction. All things are brought to a focus in the Divine self-disclosure in Jesus, and in Him all things hold together. Reason, *scientia,* will be misused and its findings will never be properly understood until we are found by Christ and He gives to us, in faith, wisdom—*sapientia.*

How correct St. Augustine is! To find Christ is to find the meaning behind all things. So evolution becomes a creative process which God creatively originates and guides, patiently bearing with His creatures until at last man in the Divine image can emerge within it. As Father Teilhard de Chardin has significantly pointed out, Jesus Christ is the omega point in which the cosmological and evolutionary processes find their fulfillment and in which their true meaning is disclosed.

Scientific knowledge gains an inner coherence when we interpret it in the light of Christ. If, in this infinite universe with its myriads of planets, there is intelligent and responsible life elsewhere, then the Word which became incarnate on earth for our redemption is the creative and redemptive principle for such life also. What He has done here, in His own chosen and appropriate way, He will do everywhere, that the whole universe may be summed up in Him.

Science itself gives us an understanding of the mechanism of nature, but faith discloses the Spirit behind the mechanism and its regularity, without Whose presence nature would lose its meaning. The challenge before us today is either to rediscover such a faith or perish. For without Christ our scientific knowledge will turn back upon us to our own destruction. It provides means but not ends, and unless

we find the ends to which the means can be directed aright we shall destroy ourselves.

The true ends lie in God's purpose as that is disclosed in Jesus Christ. To commit ourselves to Him is truly to exist, to learn how to use our scientific knowledge, and to control nature for God's glory.

TOWARDS REAL MUTUALITY

BY DR. ANDREW K. RULE

An Australian by birth (Melbourne), Dr. Rule has become known as one of the most brilliant apologists in the entire Christian world. Biographic brief: A.M., University of New Zealand, with first class honors; B. D., Princeton Theol. Seminary (Fellowship in Apologetics); post graduate studies at University of Edinburgh, Scotland, and University of Bonn, Germany; D. D., Centre College, U.S.A.; ordained Presb. ministry; Professor of Philosophy and Education, Friends University; Professor of Bible and Philosophy, Illinois College; Professor of Apologetics, Louisville Presb. Seminary, since 1927; member of Philosophical Society of Great Britain, American Theological Society, etc; contributor to Encyclopedia of Religion *and several other books and magazines; editor for the Dep't of Theology, Apologetics and Ethics,* New Schaff-Herzog Encyclopedia of Religious Knowledge.

IT is not surprising that the development of post-medieval, Western culture has involved, at every point and over all of its area, difference of judgment and earnest debate. That seems to be the way in which our dynamic Western mind does its work. Perhaps it is only by co-operation and conflict that the social process, anywhere and at any time, can operate. If that is so, both co-operation and conflict are to be welcomed. The thesis of this chapter is that, on the whole, healthy co-operation and healthy conflict between independent workers within each field of inquiry, and between

the various fields, has been characteristic of our cultural development, and is so today.

But the spirit of some of the conflicts has not been good. Some of them have led to actions that are painful to contemplate—just as painful as they were for those directly involved in them. And particularly the manner in which certain interpreters of our cultural history have represented the conflicts, exaggerating them out of all proportion, is distressingly misleading. It is surprising and erroneous to represent the relations between "science" and "theology" as those of necessary and continuous and somewhat unprincipled warfare; to make it appear as if all the scientists and their apologists were harmoniously at one, all the theologians except "ourselves" were lined up together but without any other support, and the relations between the two "camps" were completely hostile. That has never been the case; it should never be the case; and it is not the case at present.

The claim that there has been more or less inevitable warfare between "science" and "religion" (or theology), and even the proposal that the relations between "science" and "theology" should be discussed, are both surprising, in the first place, because the alleged contestants simply do not line up together on either side. It is true that the human mind has always and everywhere been confronted by the difficulty of thinking together those aspects of experience which seem to come by way of the senses and those which more obviously involve value judgments. That is why the Western world has had a continuous tradition of idealistic philosophies confronted by realisms of some sort. That too is why, if C. F. Northrop is correct in his *The Meeting of East and West,* the West as a whole has tended to emphasize one type of knowledge and the East the other.

It is true also that difficulty has been found in adjusting the claims of sense experience with those of reason, so that within the scientific movement we find tension between the laboratory experimenters and the more speculative scientists, and in philosophy we find the sensationalists lined up against the rationalists. And it is true that the scientists have tended

to find the sensationalist point of view more congenial while the theologians have often found themselves more at home with an idealistic, rationalistic philosophy. In that sense, and to that extent, there is some justification for lining up "science" on one side against "theology" on the other. Further, there has always been some tension between those who would confine human knowledge to the "natural" and those who would admit also some "supernatural" source of knowledge, with a tendency for the scientists to take the one and the theologians to take the other.

When that is acknowledged, however, two further facts are to be noted. One is that it is not simply a conflict between "science" and "theology." It is a conflict in epistemology [method and grounds of knowledge], with more than the scientists on the one side and more than the theologians on the other. In the modern, Western stages of the conflict, the interests of the scientific movement may seem to spearhead the drive of the one side and the theologians may seem to spearhead the other. But that is largely superficial appearance. In reality each side finds itself dependent upon and committed to the other. They cannot get along in separation. And that is why we do not really find two harmonious and consolidated "camps" in opposition. What we do find is that the problems which tend to divide the camps one from the other are also divisive within the two camps. In theology, in the face of these widespread problems, we find an Anselm against an Abelard, a Thomas against a Scotus; we find fundamentalists, evangelicals, existentialists. In philosophy we find rationalists, sensationalists, Kantians, idealists, pragmatists, analysts. Among the scientists we find an experimentalist like More bitterly attacking the speculators, Einstein, Eddington and the like. We find mechanistic biologists in firm opposition to vitalists.

Another reason why it is a gross oversimplification to speak of "science" as one unified body versus "theology" as another is that on each side we actually have an unfinished task, or rather a number of unfinished tasks.

As to *religion,* it has been said that religion is not a philos-

ophy but is seeking a philosophy. Insofar as that is correct, can it be said that such a philosophy has been found? Individuals and groups will tend to answer in the affirmative. For example, among the evangelicals the Dutch have been working assiduously, and some evangelicals will claim that Dooyeweerd [1] has found the true Christian philosophy. But not all evangelicals will agree. Others feel that the organismic philosophy of Whitehead is along the right lines. Still others will advocate some kind of existentialism in the name of Christianity. And there are others. Theology obviously confronts here an unfinished task and cannot speak with one voice as against the scientists or against anyone else. Indeed, there have been in modern times theologians who insist that the search for a philosophy is no part of the theologian's task at all.

Nor can it be said that *science* is a united front. If science is defined as a certain method of discovery, there may be some plausibility to such a claim. Yet it is a fact that each of the special sciences employs to some extent methods peculiar to itself, and specialists in that science will deny the name of science to other disciplines which cannot employ exactly those methods. Further, within some of the sciences, for example biology, there is intense difference of judgment as to what are and what are not appropriate methods and categories. But if it is proposed to define science as a unit by discovering a method common to them all, we are likely to reach the conclusion that science is the employment of an inductive-deductive method with as great a measure of accuracy as possible. That, however, would seem to be the ideal of all discovery and not simply the exclusive characteristic of science.

If, on the other hand, we survey the broad field of actual scientific accomplishment, what seems to confront us most strikingly is a vast sea of ignorance, which becomes vaster and more baffling as the scientific movement proceeds. Thrusting through the surface of this sea there seem to be

[1] Professor at the Free University of Amsterdam, The Netherlands—*Ed.*

separated islands, the special sciences. Each of these depends on assumptions which may be progressively supported but never actually proved—some of them shared with thought in general, some shared with other special sciences, and some peculiar to that special science. No one of the special sciences is a completed project. Within each there is strenuous debate as to the validity of present findings and no assurance that future discoveries will not require revolutionary revisions. And there is heated debate as to whether some of them have a right to be classified as sciences at all.

Let it not be thought that you are here confronted by a theologian who is trying to downgrade science. To make any such attempt would be a complete repudiation of our intention, as, we trust, will abundantly appear. We are simply trying to be realistic. And for every one of these contentions the authority of acknowledged scientists can be cited. For example, Ivan Niven shows in his lecture on "Mathematics: a House Built on Sand?",[2] as does Philipp Frank in his *Philosophy of Science*,[3] that mathematics rests on assumptions which it cannot prove and which may not be correct. Eddington assured his fellow Quakers that they need not fear opposition from science, which could not prove even the multiplication table,[4] and the great physicist and mathematician, C. A. Coulson, broadly asserts that science cannot prove anything. In the same book [5] Coulson writes that "real scientific knowledge is too sparse, the whole scientific movement is too broken up and specialized for more than a handful of scientists to possess a wide enough grasp of its many sections."

Now, if what we have said is a realistic picture, neither science nor theology is unified enough to justify any warfare, or any talk of warfare, between "science" and "religion." Even to propose a discussion of "science" and "religion" is

2 University of Oregon Books, 1959.

3 Philipp Frank, *Philosophy of Science* (Englewood Cliffs, N. J., Prentice-Hall, 1957).

4 Arthur Stanley Eddington, *Science and the Unseen World* (New York, The Macmillan Company, 1929).

5 *Science, Technology and the Christian.*

to assume a situation which grossly oversimplifies and misrepresents the facts. What surely is called for is a vast attack upon our common ignorance, in which specialists will pursue their several tasks as best they can, with respect and devotion toward their own assignments, and with eager and respectful attitudes toward the similar proceedings of other specialists, but with humility instead of dogmatism with regard to present accomplishment.

At the same time, others should attempt a more synoptic task, with mutual respect and with profound but not servile respect for the work of the specialists. There is room in this vast enterprise of unfinished business for manly independence, but none for either servility or hostility and exclusiveness. There is need for a spirit of tentativeness even in the acceptance of what seem to be presently assured results, along with a frank and friendly acknowledgment on the part of all that, for the present at least, such apparently assured results are the best that we can know.

The writer wishes now to assert that such a spirit has actually characterized the many-faceted search for truth throughout the Christian centuries, and that it is the prevailing atmosphere of that search today. He would of course acknowledge that, among the specialists, the debates arising out of natural and healthy differences of judgment have not always been carried on in this spirit but have been allowed to degenerate into unseemly conflict. But he would also insist that the popular interpreters of our more recent cultural development have, with some sort of "ax to grind," exaggerated the conflict aspect out of all proportion and have misrepresented both its general character and numerous specific incidents. The better known histories of the warfare between science and religion are not impartial histories at all but simply propaganda misusing historical materials.

A specific propaganda example is the widely accepted misrepresentation of the painful incident when Galileo was disciplined by the Inquisition; its use to support the contention that such conflict characterizes exclusively the relations between science and religion, and that, in such conflict, the

scientists are shining knights of truth and the theologians (except of course our own brand of theologians) are always wrong and despicable. As for this sort of thing being exclusively true of the relations of science and religion—unfortunately all too many examples of the same sort of thing can be cited between theologians and theologians and between scientists and scientists. When the encounter between Galileo and the Inquisition is seen in the light of all the facts, neither party emerges with honor; neither the Inquisition nor Galileo is all white or all black. That action by the Inquisition is not typical of the attitude of the Roman Catholic Church towards the scientific movement, but was the work of an incensed party which happened temporarily to dominate the Papacy. And, in any case, the attitude and actions of the Roman Catholics are strictly theirs. The Protestants have their own story. To misrepresent the Galileo incident, to imply that that sort of thing is confined to the attitude of theologians toward scientists, and to insist that it is typical of that attitude, is simply irresponsible and inexcusable. That has not been, and it is not now, typical. The very opposite is the truth, as it should be. Adequately to support this claim would carry us far beyond the limits of this chapter. But at least some things can be said here as indicating the lines that such support would take.

That there is a broad congeniality between the religious spirit and the spirit of science has often been acknowledged both by perceptive scientists and by religious representatives. Typical is the statement which Einstein made in 1930. He wrote, "The cosmic religious experience is the strongest and the noblest driving force behind scientific research." That expression, "the cosmic religious experience," is quite vague and I am not at all sure that I know what the great scientist meant by it. But one thing is abundantly clear. This great speculative scientist, who obviously had given much more thought to questions of attitude and to the broader relations of the scientific movement than a laboratory scientist would be likely to do, finds a positive causative relationship between something religious and the scientific drive.

Similar claims are made in which historical Christianity takes the place of Einstein's vaguer reference to religion. For it can scarcely escape the attention of thoughtful students that it is within Christendom that the scientific movement has found its most congenial home. The various scientific attempts that have been made outside Christendom and before it arose look like the earnest efforts of a scientific spirit to find a congenial home. They met with temporary success but also speedy failure. This is true even of Greek science. But as soon as the Christian spirit was able sufficiently to establish itself in the society of Europe, science found a home therein and has since gone on from strength to strength. When in our own time science has been carried to non-Christian lands its impact on their societies has tended to be destructive of established customs and values. Science seems to be so wedded to the Western culture that it carries the latter with it wherever it goes.

Not only has the kind of religion that is congenial to the scientific spirit been made more specific, but specific ways in which that congeniality exists have been pointed out. For example, Denis de Rougemont, in his book *Man's Western Quest*,[6] is trying to interpret Western culture for oriental readers. Its dynamic quality is especially emphasized—a quality which is expressed in science and to which science has made its contribution. The author attributes this dynamism to our emphasis on "personality," and he attributes this in turn to our wrestling with this concept in the efforts of the early Christian Church to express its thought of God as unitary but tri-personal. If and insofar as this is correct, the specifically Christian doctrine of the Trinity has served to create the dynamism which is so congenial to science.

Again, A. N. Whitehead, both a great mathematician and philosopher, has drawn attention to science's assumption, never proved or provable by strictly scientific methods, that nature is a self-consistent, rational system; and he has insisted that this is in harmony with the Christian doctrine of God

[6] Denis de Rougemont, *Man's Western Quest* (New York, Harper & Bros., 1957).

as Creator and Providential Governor of nature. What has usually been overlooked, however, in this connection is the Scriptural teaching that nature is now in a disordered condition as a result of the Fall. It may be that this conception of a disordered order would be even more compatible with the actual discoveries of science. And, finally, the conviction that the temporal process is linear, not circular, seems to be a happy contribution of the Hebrew-Christian tradition to the necessities of science.

If such claims are just, as we believe that they are, then it is not surprising to find that the greatest of the scientists and the most representative of the theologians have usually entertained the warmest appreciation of and interest in one another's work. The modern period began like that. On the one hand, Newton was probably more devoted to his natural theology than he was to his science. Leibnitz wrote a book defending the ways of God to man. Calvin, on the other side, wrote appreciatively of astronomers, philosophers ("in their fine observation and artful description of nature"), logicians, medical men and mathematicians, and warned that holding their work in light esteem would be, not only ingratitude, but even contemning and reproaching the Holy Spirit.

It is true that science in its beginnings had to encounter resistance from the scholasticism of medieval philosophy and theology, so that there has been from the first also a tension between science and theology. It is true also that, in the eighteenth century, a tradition of hostility grew up on the part of apologists of science towards both philosophy and theology; and that this tradition, though greatly exaggerated by some, has not yet died out. It apparently reached its zenith, however, in the first two decades of the present century, when Professor J. H. Leuba's questionnaires seemed to him to show, mainly by picking the minds of acknowledged scientists, that belief in God and in immortality persisted in inverse proportion to trained intelligence. Bertrand Russell, in his *Freeman's Worship,* found that reality, as interpreted by science, would force an attitude of defiance on the part of

religion and would ultimately destroy it. Stace, later, arrived at a similar conclusion. He found that science is committed to a non-teleological interpretation of reality while religion is essentially teleological [having design and purpose]. And the widely accepted philosophy of Analysis contends that loyalty to science requires us to regard religious and all value judgments as simply meaningless and emotive ejaculations.

But it seems not too much to claim that this opposition did reach its zenith in the first two decades of this century, and that the older attitude of appreciation between scientists and theologians is being restored. From a wealth of material that would support this claim the following may be selected as symptomatic:

In 1925 the eminent British bio-physicist, Joseph Needham, contributed a chapter on "Mechanistic Biology and the Religious Consciousness" to a symposium entitled *Science, Religion and Reality.* In it he drew attention to some characteristic of "life" which, he claimed, could not be treated by science. He invited religion to deal with it. The same year the American chemist, E. E. Slosson, published his *Sermons of a Chemist,* in which he earnestly invited students for the ministry to give attention to the revolutionary implications of the scientific movement, severely castigated them for their alleged indifference, and insisted that the greater theologians had no such spirit. He named, as theologians who would have been intensely interested, Edwards, Berkeley, Calvin, Wesley, Aquinas, Augustine and Paul. I am inclined to agree that these men, and many like them, if they were living now, would be tirelessly and appreciatively interested in the bearing of contemporary science on their main problems, though not all of the theologians mentioned manifested in their writings an interest in the science of their own time. I heartily agree also that students for the ministry ought to be tremendously interested in such matters. But I do not agree that there was as little interest among them as Slosson claimed. At that time the theologians who were most prominent in America were known as Liberals or Modernists, and

their attitude towards science was what has since come to be called "scientism." It is difficult to believe that the students of such men were as indifferent to the implications of the current scientific revolution as Slosson alleges.

There certainly was much more of that interest among the conservatives than he had discovered. No statistics are available, but some personal observations and experiences may serve to support this claim. When, after years of such an interest on my own part, I became professor of Apologetics in a conservative Presbyterian seminary I found that interest already present. It was the elderly professor of Systematic Theology who first drew my attention to *Science, Religion and Reality,* the volume previously referred to. He had been eagerly reading such books for years. Later he delivered a series of lectures on the subject in a conservative Southern institution, and they were published. Ever since 1927 I have been lecturing to my students on this subject, and have continuously had a good response. But we were not alone. For example, when J. Gresham Machen, often though erroneously classified as a "fundamentalist," contributed his biographical chapter to Virgilius Ferm's symposium on *Contemporary American Theology* he paid glowing tribute to his parents for their wide cultural interests, including the scientific interest, and for the influence that this had had upon himself. He charged that those who neglect such interests are guilty of offering impoverished selves to God.

Thus, thirty years ago, the appreciation of theologians, liberal and conservative for the scientific movement was much greater than men like Slosson knew. But it has been growing rapidly, and has been meeting with a corresponding appreciation of scientists for theology ever since. In 1931 E. H. Cotton edited a symposium in which chapters were contributed by five famous physicists, two astronomers, a geologist, a biologist, a zoologist and one who was a medic, a psychologist and a philosopher all in one. The title of the book was *Has Science Discovered God?* Whatever answer this question may have evoked in the readers, there is no doubt about the positive attitude of the contributors of this

book towards religion. In 1958 appeared Dr. Monsma's symposium, *The Evidence of God.* In it no less than forty well-known American scientists profess their faith in Biblical Christianity, and they claim, not that their Christian faith was derived from science, but that it is supported by science and their understanding of it is enriched by science. The present volume is a reply on the part of theologians, and their attitude towards science will be found to be equally appreciative. The following year Russell L. Mixter, himself a scientist, edited a symposium on *Evolution and Christian Thought Today.* Here twelve working scientists, whose papers had been approved by the more than eight hundred members of the American Scientific Affiliation, an association of qualified scientists all of whom hold to the evangelical faith, expressed their judgment that a theistic framework would be every bit as congenial to the actual discoveries in the field of evolution as is the naturalistic framework usually employed. The final chapter in this book, quite in the tone of the book as a whole, is by the conservative theologian, Dr. Carl Henry.

Eminent scientists have become Christian advocates, to some extent because of their science and certainly without repudiating their science. One thinks of Dr. W. G. Pollard in this country, and of A. F. Smethurst and C. A. Coulson in England. Very striking is the pilgrimage of the American, L. L. Miller, who, beginning as a physicist, discovered that the most pressing problems in that field are philosophical. Accordingly, she made herself proficient in philosophy, only to discover that the basic problems in that field are theological. And so she studied theology. Recently a physicist in the Naval Research Laboratory in Washington, D. C., told me with some emphasis that he did not know a single one among the younger physicists who was not a firm believer in God. He himself is an elder and a very devoted worker in a Presbyterian church in the capital city.

To summarize, in conclusion, we are convinced that we are expressing the proper spirit of Christian theology when we say that the searcher in any field of human enquiry must

do his own proper task in his own way—a way the possibilities and the limitations of which are dictated by the nature of the task itself as well as by the competencies and incompetencies of human nature at our present stage. He should be fully aware of the similar efforts of workers in other fields, particularly of the more closely related fields. If, in his eagerness for their success, he should feel free to offer them some suggestions based upon his own special insights, these should be offered with humility and received with cordiality, though they must be tested by the methods and categories appropriate to the recipients.

When scientists and philosophers do their work in this spirit of independence and mutuality, the scientists will recognize that, whether they know and intend it or not, they are aiding the theologians in the study of the "natural revelation" and serving the cause of the God of truth. And the theologian may legitimately feel that, in doing his own work in his own way, he may have something to offer, in the same spirit of humility and mutuality, to the scientists and the philosophers. And, further, this is not only the proper spirit for us all; it is, with too many regrettable exceptions on the part of all, the prevailing spirit.

A SIMPLE STATEMENT OF MY POSITION

BY DR. J. THEODORE MUELLER

A spiritual father to well over two million people, all members in full communion of the Lutheran Church, Missouri Synod—that is the unique but true description of the honored writer of this chapter, Dr. Mueller. Biographic brief: B. A., Concordia College; B. D., Concordia Theol. Seminary; advanced studies, Tulane University; Th. D., Xenia Theol. Seminary; pastorates in Michigan and Illinois; in 1920 became Professor of Systematic Theology at Concordia Seminary, where he is still teaching part time, after retirement; author of 55 books and brochures, chief of which is Christian Dogmatics; *contributing editor of* Concordia Theological Monthly *and* Christianity Today; *since December, 1959, pastor of Bethany Lutheran church, St. Louis.*

INSTEAD of arguing the case of science and religion on theological grounds I prefer to offer a plain, simple statement of my position, more or less in the nature of a personal confession. Perhaps after a teaching career of nearly half a century (almost all of that time at Concordia Seminary) the readers of this volume may be somewhat interested in my observations.

During all my years of teaching, my students and I were constantly confronted by the theories and hypotheses of modern science, and unitedly we reached this decision: on

the one hand to stand resolutely by the conviction that the Holy Scriptures are the inspired, infallible Word of God, and also gratefully to accept the results of science insofar as they have been proved experientially; on the other hand to treat the unproved hypotheses of scientists merely as hypotheses, and where they contradicted Scripture to cast them aside. This always seemed to us reasonable and fair both to Scripture and science.

I may say that at the very beginning of the present century I was very much impressed by the findings of science. At that time my attitude toward Scripture was one, let us say, of watchful waiting, if not forthright doubt. In those days the theories of such men as Graf-Wellhausen and his followers were very popular, as to some extent they are today. Especially the Old Testament was regarded not as the Word of God written by the men to whom Christian tradition ascribed it, but rather as a composite work derived from numerous sources, some of them of very late date, such as the second century before Christ.

But, for me, all that passed by. A careful study of the New Testament made very clear that if one accepted the New Testament as infallible Scripture one had to accept the Old Testament as equally valid Scripture, too. Christ and the apostles, over and over again, referred to the Old Testament as the very Word of God. All that was necessary was to see the Old Testament in the light of the New. "Search the Scriptures," said Jesus, "for in them ye think ye have eternal life, and they are they which testify of Me" (John 5:39). In Jesus' parable of the Rich Man and Lazarus we are told that Abraham ended his conversation with the rich man by saying, "If they will not listen to Moses and the Prophets [the Old Testament], they will not be persuaded though one rose from the dead" (Luke 16:31). St. Paul makes this very striking statement: "Ye are built upon the foundation of the apostles [New Testament] and prophets [Old Testament], Jesus Christ himself being the chief corner stone" (Eph. 2:20). And the Apostle Peter asserts with clarity and power: "No prophecy of the Scripture [Old Testament] is of any

private interpretation, for the prophecy came not in old time by the will of man, but holy men of God spake as they were moved by the Holy Ghost" (II Peter 1:20, 21).

So both the Old and the New Testaments are unquestionably the Word of God, Graf-Wellhausen and his associates and successors notwithstanding. That has been our firm conviction all through the years. And this firm conviction was not shaken by the more recent attacks of Bultmann and his co-workers who contended that much of the Biblical content is myth, or, in German, *Sage*. The entire series of Biblical hypotheses of the extreme neo-orthodox school must be repudiated by the believing scholar as unsound. With Martin Luther we still say, and will continue to say, *"Das Wort sollen sie stehen lassen!"* [1]

It was a refreshing experience to read the other day what Dr. R. M. Brown, Professor of systematic theology, Union Theological Seminary, New York, had to say about the permanency and inviolability of Scripture. The concluding sentences of his well-written article are very striking:

"The saving fact about the committing of the apostolic witness to writing is the fact that *the text is there* [underscoring in original]. We can distort it, misinterpret it, and twist it, to be sure, and the history of the Church is full of sorry examples of how men have done this. But we can never quite get away with it, for the text remains—to speak its Word more powerfully than our word, to rise up and drown out our voices when we go too far astray from it. It has done this before, and it will do it again. This self-recuperative power of the Word is the secret of renewal in the life of the Church. Only as we are ready to concede this priority to the Scriptural witness can we have any hope of transmitting faithfully the apostolic witness. Without the text we would inevitably distort the witness. We do it all the time, and it is the givenness of the text that finally thwarts us in this endeavor.

"None of this can be guaranteed by human means. There

1 "The Word you shall leave alone!"

is an 'apostolic succession,' but it is measured not by the imposition of a certain number of validated human hands; it is measured by our fidelity to the apostolic witness, the norm for which is Holy Scripture. Continuity there is, but it is God's and not ours . . . The Holy Spirit can be indifferent to human channels, even channels guaranteed to possess the proper credentials. He can, as He has done before, raise up children of Abraham out of the most unpromising-looking stones. We can never claim that He must use us. We can only hope that we will be used by Him." [2]

The foregoing served to state, very briefly, what I understand by the term "religion" as used in the title of this symposium: *Science and Religion*. Religion is faith in the God of the infallible Holy Scriptures, and the practice of that faith.

Now, with regard to science—together with all believing Christians I recognize science, properly so called, as a great and signal gift of God. Science is one of the means by which God in His infinite mercy upholds and preserves His creation, especially man who since the Fall is subject to many evils, diseases, and adversities of every kind. It is also the means by which man, even in his fallen estate, is mercifully permitted to make progress along various lines.

The word "science" in this sense means what learned men by actual experimentation have found out to be a fact, or facts. It is not anything hypothetical or indefinite, but something absolutely reliable and so used for the welfare of mankind. Thus electricity with its manifold uses, increasing every day, is a blessing to the human race. The antibiotics are being used by physicians to preserve human health. Our modern laboratories are now searching for a cure for cancer, and it is entirely possible that in God's good time such a cure will be found.

In these cases we think of science as true knowledge obtained by experience. Back of the findings of science were

[2] R. M. Brown, "Tradition as a Protestant Problem," in *Theology Today*, January 1961, p. 454. Used by permission.

theories, and these theories were tested and tried out in the laboratories. But "science" also has a wider application. The expression often covers knowledge in a very general sense, and the accumulation and systematization of such knowledge. The term "science" is also used to describe the search after truth—of whatever nature. When it is employed in this sense science often undergoes a change; is no longer science but becomes philosophy, and not infrequently a false philosophy —a medley of errors resulting from unproven, untrue, or even irrational hypotheses. Yet such a false philosophy too often keeps parading under the name of science.

When "science-turned-philosophy" comes to deal with religion, specifically with the Christian religion, and with the Holy Scriptures, its great Source Book, then faithful Christians are bound to be on their guard. The familiar and long-drawn-out debate between the champions of a materialistic evolution and those who defend the Mosaic creation report in Genesis is a case in point.

The inspired Scriptures definitely declare that the universe was created by God within six days of normal length. For this reason we reject the pantheistic theory that the universe is an emanation from God, or His manifestation, so that God and the universe are identical. This false theory implies that the concept of a personal, supernatural God must be repudiated. Christians will also reject the pagan doctrine of the eternal existence of matter, fashioned at some time by some deity into this present world. In like manner Christians refuse to accept the theory of materialistic evolution as an explanation of the origin and present status of the world.

When we scan the Scriptural creation report we shall find that God did not create all things "at once, but gradually, observing an admirable order." This order of creation, however, was not an "evolutionary process," for according to Scripture the world was not developed by forces resident in matter itself but by the almighty, creative power of God, instantaneously. "God created . . . God said . . . " (Gen. 1:1-3). And on the seventh day, we read, God rested [an anthro-

pomorphism] from all His creative work and sanctified that day.

To conceive of the six creation days as immense periods of time, each millions of years in length, is hardly in agreement with other Scriptural references to the Genesis account. In Exodus, the Israelites are commanded to keep the Sabbath day holy, "for in six days the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh day; wherefore the Lord blessed the Sabbath day and hallowed it" (Ex. 20:11). Nor does Scripture permit us to assume a long period of millions of years between verses 2 and 3 of Genesis I. The rest of the Genesis chapter is very specific, and of this initial "long period" there is not the slightest hint.

If a person rejects the Mosaic creation report and turns to the hypotheses of atheistic scientists he will find himself swamped by hypotheses that are both fantastic and incredible. Such scientists seek in vain proof for a development of organic beings from inorganic things, or higher forms from the lower. Atheistic evolution is untenable because, for one thing, it does not account for the existence of primeval matter, and for another, it rests upon a principle disproved by nature, namely the supposed transformation of the homogeneous into the heterogeneous (transmutation of species). This type of evolution dabbles in millions of years. But even *billions* of years do not prove a single iota. Every attempt to correct or supplement the Genesis record is unscientific pretense. Even so-called theistic evolution is, in my opinion, untenable. It is neither in accord with Scripture nor with the basic principles of evolution proper.

The general public seems to have an idea that evolution, as it is commonly understood, began with Darwin. It did not begin with Darwin; its beginnings can be traced back to circa 700 B.C. in ancient Greece. Thales of Miletus (640-546 B.C.) first taught a certain cycle of development. He was followed by Anaximander (611-547 B.C.), who believed that all things existing came from a primordial mass which gave off various shapes of matter in plant form that were eventually resolved into more complex forms. He held that

man had developed from fish forms. Heraclitus (540-475 B.C.) conceived of a universal process of flux in both generation and decay. Aristotle (384-322 B.C.) posited an evolutionary idea which proved to be of great importance to evolutionary thought in ancient times. He held that an intelligent direction or design controls nature and formed the various organs in order of their actual necessity for life.

These ancient, more or less crude, theories of evolution could not account definitely for the existence of the universe. Nor can the modern theories of evolution do this. The Christian scholar is sure of his ground only when he adheres to the Divinely inspired, infallible Word of God.

AN ILLOGICAL CHOICE

BY DR. PAUL K. JEWETT

Adept as he is in systematic theology and well known for his proficiency in that branch of learning, Dr. Jewett is also familiar with several of the bailiwicks of natural science. Biographic brief: B. A., Wheaton College; Th. B., Th. M., Westminster Theol. Seminary; Ph. D., Harvard University; advanced studies at University of Berne and University of Zurich, Switzerland; Professor of Philosophy of Religion, Gordon Divinity School; Associate Professor of Systematic Theology, Fuller Theol. Seminary, since 1955; author of Emil Brunner's Concept of Revelation *and of numerous articles of substance in various periodicals.*

ONE of the most significant and unfortunate aspects of higher education in our contemporary society is the manner in which the learning process is sometimes manipulated so as to force upon the student a choice between his Christian faith and the teachings of science. Such a choice is illogical. Sometimes it is the zealous defenders of Christianity who err by disparaging natural science as a kind of whimsical modern craze, whose findings change with the seasons. (Such people, however, are quite happy with the technological improvements in creature comforts made possible by the advance of science.) But in my experience, more often it is the opponent of Christianity who is found in this fault by disparaging the teachings of the Christian faith and presenting them as having been superseded by an up-to-the-minute

scientific view. Thus the student comes to feel that the Christian is at best a well-meaning citizen who has stifled and deadened his intellect to keep alive his faith.

If the Church sequesters herself from the rigors of thought necessary to challenge this false alternative between science and faith, she will lose the rising generation of intellectuals to a secular world view. Karl Heim complains that the primary threat to the Church today is not a Prometheus-like defiance of the gods, nor a resignation that fears the dark beyond, but a secularism which postulates an invariable, inexorable natural law whose kingdom reigns from the atoms to the galaxies, and whose pitiless light exorcises the pink clouds of religious speculation. The man who is caught in the toils of such reasoning no longer dreams of paradise; he is better informed. He simply sinks his roots down in this world and lives in the present without hope of the future. For him the Church is one of the curiosa of our cultural past which, like the ruins of Athens, attracts tourists.

It is no easy matter to dig such an ultimate secularist out of his burrows, and within the narrow confines of this chapter we shall not attempt such prodigious work. But perhaps we can say something that will help those who still halt between two opinions, who feel themselves standing before a crossroad of decision in which they must choose between their Christian faith and intellectual integrity.

Let us begin with the question: What is there in science that makes it impossible for an honest man to be a Christian believer? Someone will say, Christianity rests its teachings on revelation, but science has perfected a method of knowing which eliminates mystery and remands the idea of revelation to the limbo of medieval superstition. To enforce this argument we are commonly reminded that when the cause of comets and eclipses was unknown, people viewed them as some fearful portent from heaven. Now that they are scientifically understood, such celestial phenomena have shed their aura of mystery and therewith their revelational values. Such an argument is indeed applicable to many things in the universe which are not so mysterious to us as once they were.

But is it not true that science has actually increased rather than diminished the mysteries that surround us?

Aristotelian science assayed to explain *why* things happen. With Galileo and Newton scientists began to settle for the easier task of describing by controlled experiment *how* things happen. But since Einstein even this hope has grown dim for many scientists. The whole question of whether science is in touch with reality, or can ever hope to be, is mooted. What is electricity? What is gravity? How are they related? What makes light behave as it does? How is it propagated through space? These are but a few of the deep, troubling enigmas of nature at the simplest level of its manifestation. As has often been observed, every mystery which science resolves points to a larger mystery beyond itself.

"The man who cannot wonder," wrote Carlyle, "who does not habitually wonder and worship, though he were the president of innumerable royal societies and though he carried the whole *méchanique céleste* of Hegel's philosophy and the epitome of all laboratories and observatories with their results in his single head—is but a pair of spectacles behind which there is no eye." [1] In other words, science rightly used should create a feeling of awe, a sense of wonder, which is openness to the possibility of an explanation of life which is given men from beyond; which is received, not discovered; that is, an explanation which is based on revelation.

But someone else may object that indeed a revelation would be helpful at this point, but which shall it be? There are many claimants, but like the witnesses at Jesus' trial, they agree not together and so they cancel out one another, for no man can believe witnesses who contradict each other.

Is this good reasoning? Does the fact that several persons claim to be the lawful heir to a man's fortune, when it is obvious that they all cannot be, justify a lawyer in concluding that none can have a just claim? Does not the history of science itself evidence many occasions where several conflicting theories were broached to solve a problem, and in the

[1] *Sartor Resartus,* Chapter 10.

end one was verified and the others discounted? To many, this is just where the rub is. It is not the idea of revelation as such which they find unpalatable, nor the task of weighing the evidence, but what Christianity teaches on the basis of supposed revelation—*that* it is which seems to them to outrage the clear results of science. This objection opens up before us large vistas of thought which we cannot explore in detail. We can only select, from our own study, some of those problems which seem most persistent and most genuinely plausible.

There is first of all the notion that the huge drafts of time and space which modern astrophysics and geology have disclosed to us have dwarfed man's significance to the vanishing point. When we weigh our planet on the scales of the cosmos it does not even register for size, it does not so much as tip the balances. We live on a speck of dust on the edge of nowhere. And when we measure the span of man's life by the yardstick of cosmic time we get an even more shattering picture. Condensing earth history to a year, man strutted on the stage about fifteen minutes ago, and written history occupies little more than the last minute on the clock. By contrast, it is said that the Bible pictures man as the heir of heaven and the envy of hell. So significant is he that God himself came into history in the person of Jesus Christ to redeem us from our sins by His life, death and resurrection. This, it is averred, made sense in a geocentric universe created a few thousand years ago, but such a gospel has become impossible to contemporary man.

Can we suppose the drama of salvation is repeated on all the planets where sentient creatures live? In evaluating this argument it should be noted, first of all, that the assumption that there are other races like ours is not established. In fact, one gets the suspicion, when all the evidence is considered, that our world may be rather unique. Ninety-nine per cent of all the matter in the universe is made up of luminous gas in a highly unstable state, and it is only in a very narrow temperature zone that life as we know it, even in its simplest forms, can exist. But, howsoever this may be, Christianity

does not teach that man is the only rational creature God ever made. Nor does Christianity claim any significance for man as an object in time and space. According to Isaiah, God reckons whole nations to be but a drop in the bucket (Isa. 40:15). Man's life span in the Bible is compared to a vapor, to grass and the flower of the grass, which flourishes in the morning and withers in the evening (I Pet. 1:24). After all, what does size or endurance in time have to do with significance? Are Sequoias more important than men because they are so big and old? Does the size of the print or the antiquity of an inscription bear on the meaning of the words? (It is a contemporary American heresy to suppose that the bigger something is the more important it is. A speech is epoch-making because the television audience runs into the millions.)

Christianity does not teach that man is important as object, but rather as subject. And, as has been often observed, as man has decreased as object, he has increased as subject. That man should have penetrated the disguises of his environment through modern scientific research is such a marvelous achievement that for me it confirms the Biblical statement that man was made a little lower than the angels, rather than the evolutionary notion that he is a little higher than the animals. And if there are other inhabited planets (and there may be), what is that to us? Why must we know how *these* creatures are related to God before we decide how *we* are related to Him?

Another objection to Christianity which is often advanced in the name of science is that the Christian doctrine of sin and guilt is incompatible with the findings of cultural anthropology, psychology and sociology. Sin, it is said, is not an evil for which we are to blame; it is simply the incidental accompaniment of man's imperfect evolutionary development. When we have been conditioned by environment and habit to follow a certain pattern of action we may have "guilt feelings" if we break with this pattern, but this is all very subjective and relative. A head-hunter feels guilty because he has not brought home as many heads as his father did when he was in his prime. We would feel guilty—so it is

argued—if we cut off our neighbor's head because we are not used to doing such things.

Now, I look upon all this as sheer moonshine. I have queried veteran missionaries who have spent years amongst primitive head-hunting aboriginal peoples. They testify that these people indeed do all the things which cultural anthropology books say they do, but as for the idea that primitives *think* they ought to do these things, this is a conceit of the arm-chair scholars. A good friend of mine devoted the best years of his life to the Dyaks of Borneo, head-hunters who filed off their children's teeth to keep demons away. Though these people were wholly ignorant of Western ways when he went to them, he left many indigenous churches and several thousand converts behind him. He told me that never did he have to tell a Dyak that he ought not to file his children's teeth or hunt for heads among neighboring tribes. They forsook their drunken orgies and their inhuman practices with such conviction that neighboring unconverted tribes were shamed into living more in consonance with common decency.

This just illustrates what we all know very well, whether we ever heard of Dyaks or not, that there is a dimension of oughtness, a sense of right and wrong, with which we have to do. And the people who are most vociferous in challenging this position are the ones who are most volatile in appealing to it when their own ego is involved. The Communists, for example, in the countries which they have enslaved, have made the will of the State supreme and have recognized no moral absolutes above the will of those who happen to hold the reins of power in the party. But in free countries, where they are not in power, they defy the State in the name of justice, liberty, freedom, civil rights and a host of other absolutes which in Communist countries are as dead and buried as the freedom fighters of Hungary. I do not believe that the evidence of cultural anthropology indicates that men in different civilizations and cultures have wholly different systems of morality. There are differences enough, but not total differences by any means. When has an anthropologist

found a people who decorate citizens for cowardice and penalize the brave, who commend parents who hate their children and condemn those who love them?

Furthermore, in my judgment it is a shallow, superficial—I might even say trivial—study of psychology and sociology that says that man's sin is a by-product of his environment, and that all we need do is improve the environment and virtue will triumph. How can anyone study history—which Gibbon has justly called the record of the crimes, follies and misfortunes of mankind—and still embrace sanguine hopes that humanity has within its reach utopian possibilities? Is there any more reason to suppose, so far as science is concerned, that the race of the future will forswear the envy, pride, cruelty and ambition of former generations than to expect that stones and water in the future will roll uphill? Here again I find that a candid look at the evidence of science should make a man receptive to the possibility which Christianity pronounces as a fact—that man is a sinner by nature and choice, and guilty before God his Maker.

The opponents of religion, specifically the Christian religion, offer one final objection which I would mention. That has to do with the end of the world. All through the centuries Christians have taught and believed that the world is coming to an end when Christ returns to judge the living and the dead, and to set up His eternal Kingdom. The objection that this is ridiculous is as old as the doctrine itself. "Where is the promise of His coming? For since the fathers fell asleep all things continue as they were from the beginning of the creation" (II Pet. 3:4). To put it in modern terms, the doctrine of the Second Advent violates the basic scientific principle of the uniformity of nature, without which all science would be impossible. In the year 1000—as indeed at many other times—many Christians predicted the end of the world, but nothing happened. At this point, then, Christianity is just plain fanciful.

What do we say to these things? Surely, we must lament that many Christians have made unwarranted predictions, and their failure shows them to have been in error. But what

about this idea that all things since the fathers fell asleep continue as from the beginning? Is this true? How can things continue as from the beginning if the fathers have fallen asleep?

There is a law, the discovery and formulation of which is justly regarded as one of the supreme triumphs of theoretical physics. The scientist calls it the second law of thermodynamics. According to this law not only the fathers sleep, not only shall we their sons sleep, but finally the race itself, indeed the whole universe, shall sleep the cold sleep of eternal death. Things will not continue forever as they now are. Time is not moving in cycles. Since the days of the Stoics many religious and philosophic thinkers have taught the doctrine of reincarnation. But even if such doctrine should prove to be more than a mere reverie, there is no final comfort here. Though we may parade across the stage of life ever so many times in ever so many roles, a last time will surely come, and then the curtain will fall. Let us never deceive ourselves about this fundamental fact: the ultimate meaning which this present world has is death, nothingness, radical meaninglessness.

The Bible also says that the world will pass away. In this matter, too, so far from being uncongenial to Christianity, science confirms it; it confirms the judgment of doom which Scripture declares upon the world and upon man and all his evil works. If science is not "a schoolmaster to bring us to Christ," at least science has brought us to the place—to use Auden's words—"where knowledge but increases vertigo."

I should not claim that science requires the Christian religion to be true. Such a claim would be as far beyond the reach of proof as its antithesis, that science demonstrates it to be false. I do not think that the question of religion's relation to science can be expressed with such determinate rigidness. But I do think that the question of science and religion confronts us with a choice, and that science makes the Christian religion a relevant and plausible choice.

No matter how we look at ourselves, whether we ponder the lessons of history, probe the depths of the self on a

psychiatric couch, or analyze our corporate life in the light of social theory, we must realize that any view of the nature and destiny of man that thinks the millennium will be introduced by a society of psychoanalyzed, prosperous Communists is hopelessly naïve and unrealistic. Man by his present reason and morality has made a mess of things. But where shall we turn for assistance, for guidance? The prospect of exploring the frontiers of space may be exciting, but it offers no consolation, no resolution of our problems. We are still alone with our problems, though we reach the farthest star.

In Christian faith, however, we are no longer alone, even in the silent reaches of the cosmos. The God of the Christian faith is not just an idea, a philosophic monad, an Hegelian Absolute. Nor is Christ, His Son, an unsubstantial chimera, hallowed by the worship of the ages. He is, also in the depths and heights and endless configurations of science, the Way, the Truth, and the Life.

SCIENCE AND RELIGION —A PARTNERSHIP

BY DR. G. ERNEST THOMAS

Dr. Thomas is nationally known as a prominent and influential official of the Methodist Church. Biographic brief: B. R. E., M. A., S. T. B., Boston University; Th. D. at same institution, majoring in Psychology of Religion; pastorates in New Hampshire and New Jersey, serving First Methodist Church in Haddonfield, N. J., for nine years; became Director of Spiritual Life for the General Board of Evangelism of the Methodist Church, and is in great demand throughout the U.S.A. as a lecturer and conductor of institutes for ministers; author of nine important books.

FOR many years leaders in the field of religion feared science. The scientific method seemed to pose a threat to the revealed truth upon which religion depended for its authority. Many scientists were persecuted and harassed. Their work was not only regarded with suspicion, but the results of their study and research were often destroyed or suppressed. Every enlightened leader in the field of religion is embarrassed by the record.

The change in the attitude of religion toward science in the twentieth century has not come about merely because science has gained popular acceptance and acclaim. Religion would oppose all science with no less vigor today if power and influence alone were involved. Let it be remembered

that science has found favor in our civilization, in part, because colleges and universities established and supported by church organizations have encouraged every type of scientific endeavor. Present-day religion welcomes science as a partner in discovering truth about the reality and the nature of God.

The contemporary scientist ought to have some understanding of and sympathy with the suspicions which religion felt in former days, that science threatened the enduring values upon which our civilization is based, when he is aware of the questions which many nuclear physicists have raised in recent years concerning the destructive potential of scientific research. Thoughtful scientists of a number of nations have raised the issue of whether they ought not to interrupt their research because they could foresee possible disastrous consequences, even the annihilation of all civilization from the earth. Leaders of religion in earlier centuries were mistaken in their suspicions of all scientific progress, but science ought to appreciate the often sincere questioning about the possible ultimate destructiveness which may be the end result of scientific research unless it is firmly controlled by judgments based on spiritual and moral laws.

For the past fifty years the wall between religion and science has gradually diminished in height until today it has virtually disappeared. Nearly seventy years ago Andrew D. White, an outstanding historian who was then a member of the United States diplomatic corps in Russia, wrote: "My conviction is that science, though it has evidently conquered dogmatic theology based on biblical tests and ancient modes of thought, will go hand in hand with religion; and that, although theological control will continue to diminish, religion as seen in a recognition of 'a Power in the universe' . . . will steadily grow stronger and stronger, not only in the American institutions of learning but in the world at large."

This forecast has been proved correct. Religion has kept pace with science in the growing respect which it receives from ever-increasing numbers of people. The small number of scientists in the last one hundred years who boasted that scientific progress would obliterate religion were no less

mistaken than were the earlier religionists who tried to halt scientific research. Short-sightedness and fanaticism have not been limited to either religion or science.

Science does not limit or destroy the truth of religion, nor does religion carry on a war in which the scientist is the chief antagonist. Each should recognize the sphere of interest reserved for the other; both should be aware that the other gives added authority and meaning by the contribution which it makes to an understanding of life in the universe.

As one whose professional interests center in religion I welcome the contribution of science to a deeper understanding of my religious faith. I could wish I had a score of lifetimes so each one could be devoted to a different area of scientific interest. Every field of science would add to the depth and meaning of my religion.

The science of physics has made it increasingly impossible to accept the idea of chance to explain the origin of the universe. Physics has found design in the origin of life which proclaims the necessity for a Designer. The science of chemistry argues the orderliness of life as found even in a single drop of water. The orderliness calls for an Orderer. The science of biology suggests precision and intelligence. They call for a Supreme Mind. The science of anthropology deals with the miracle in man's development. The miracle demands a Divine Source. The science of medicine discovers healing processes in the human body which defy explanation. They demand a Giver of Life. So it is with astronomy, physiology, psychology and the other sciences. Each one demonstrates the futility of an explanation of life without recourse to a Supreme Being.

I shall always be grateful for the insights which science brings to man's desire to know God. While the Bible continues to be the most dependable source of our knowledge of the Divine Being we accept the principle that the Bible does not contradict other reliable sources of knowledge. A student of the Bible is wise if he welcomes all knowledge as a part of God's revelation of His nature. The work of science gives added insight into the truth which religion lives by.

Nothing is taken away from the admitted contribution of science to the store of human knowledge to suggest that some of the truths with which religion deals are beyond the tests of science. At least, of science as we know it. Faith asserts that "God is a spirit and they that worship Him must worship Him in spirit and in truth." This involves a thrust of faith beyond that which science can describe.

Yet science, too, is dependent upon faith. All scientific method relies on orderliness and predictability in the universe. Chemical research requires confidence in chemical formulas which remain constant. Medical science builds its treatment of human ills upon invariable facts concerning the makeup of tissue, blood, nerves, and glands. Every field of science would be helpless without constant faith in the dependability of the universe. Science and religion meet on common ground in their reliance on faith. Certainly, science has no right to regard religion scornfully because it asserts the necessity for faith.

Religion deals not only with the nature of God as a transcendent Being, but with the purposes of God as they are observed in the functioning of the universe. Periodically in history certain theologians have advanced concepts of God as the Totally Other, completely separate from the world and from man. Such theological ideas always flourish in periods when war or disease or calamities of nature make man's condition appear hopeless. Much more frequent have been those periods when theology identified knowledge of God with His purposes for the universe.

Science has made an inestimable contribution to religion in helping the theologian and the philosopher to understand the endless purposes of God. The raw material of the biologist, the anthropologist, the chemist and the astronomer becomes the thread which the theologian weaves into the pattern which suggests that God's purposes are continually unfolding in the universe.

The Hebrew and Christian religions regard the Old Testament as a Divine revelation of truth. Yet, again and again the authority of the Bible is based upon the material with

which science deals. The Psalmist said, "When I consider Thy heavens, the moon and the stars which Thou hast ordained, what is man?" The Psalmist found evidence for God in the nature of His world.

As the various sciences learn more about the function of the laws which govern the universe religion finds added evidence to support its concepts of God. Religion needs science. The purposes of God are brought into clearer focus by every new discovery of truth which the scientist makes.

The relationship between science and religion becomes indivisible when we consider religion's concern with the nature of *man*. Religion deals with ultimate meanings in the universe. While God as a Being exists entirely apart from man, knowledge of God is dependent upon man's use of his intelligence. For that reason religion must deal with man as well as with God.

Religion is concerned not only with man's attitude toward God, but with God's attitude toward man and his world. Religion is interested in the purposes of God as revealed in the history of life on the earth. But that is not all. Religion is concerned with the purposes of God in the lives of individual men and in the life of society as a whole. God is not only the transcendent Being who is the Source of all life and the Architect of history; He is immanent in the world of the twentieth century, intimately involved in the human struggle. Religion sees God as directly concerned with the problems which confront man in the twentieth century.

Some of the world's religions look upon human existence as a tragedy. Their adherents strive to suppress or submerge all human feelings or desires. Nirvana for the Hindu religion is the state in which the believer completely loses his identity in nothingness. Elaborate rituals and forms are prescribed to bring about the annihilation of the self even before physical death brings an end to the functions of the body and mind of man.

The Christian religion maintains a position which is the exact opposite of this point of view. It interprets the life and work of Jesus as a revelation of the endless interest of God in

the welfare of mankind. It sees God as concerned with men of every race and nation, every economic group or class. It sees man as the benefactor of the provision of the Creator for his welfare, his comfort, and the satisfaction of his inner longings.

Because of this concept of the Divine nature, the Christian religion is concerned with everything which keeps man from the realization of his noblest aspirations. It is a religion which is troubled when millions of people are hungry. It strives to find answers to the problems of poverty, injustice, war, and peace.

Religion joins hands with science in searching for answers to the problems which confront our society. When scientific research through geology and chemistry discovers ways by which barren wastelands are converted into fertile fields to produce food to feed hungry people religion sees science as a partner in fulfilling the purpose of God. When medical science finds new methods to attack ancient diseases religion welcomes science as a partner. When psychology or psychiatry learns of repressions or mental conflicts which destroy personality religion recognizes a friend who shares the Divine concern for man to find completeness.

Because religion interprets God as interested no less in the fulfillment of man's greatest possibilities as in the orderly functioning of the planets and the stars, religion honors Pasteur, Lister, Koch, Einstein, and other men of science. It recognizes the scientist as one who shares in the fulfillment of God's purposes for His world.

As one whose interests and professional concerns are in the area of religion I have no desire to question the results which are gained from scientific endeavors. I recognize that science holds the secret of a more abundant life than man has ever known. I respect the areas of human knowledge which are broadened by research in every phase of study undertaken by the scientist. Yet I welcome the admission by the scientist that religion deals with truths which cannot be contained in a test tube.

The late Arthur Compton addressed a large audience in

St. Louis a few months before his death. His lecture dealt with nuclear physics. He could speak with authority as one of the foremost scientists in the field. At the conclusion of the lecture Dr. Compton invited questions from the audience. A young woman asked, "Do you believe in God?" The chairman quickly interrupted to remind her that such a question was out of order. Dr. Compton immediately indicated that he was happy to answer the question. He said: "As a scientist I must admit that I have no facts which would either prove or disprove the facts of God and His nature. But I am not only a scientist. I am a man. As a human being I gladly admit that I have no explanation for the universe apart from a Supreme Mind. I believe in and trust God."

When the scientist recognizes that religion deals with spiritual and moral values which rely not only on factual knowledge but on the interpretation of those facts, science and religion are mutually helpful to each other. Science is neither moral nor immoral. It must have moral codes based on both Divine revelation and human experience if it is not to destroy itself.

The need of science for spiritual and moral insight and judgment has been dramatized in this generation in the inner conflict which medical science is facing with regard to the struggle to keep alive indefinitely patients who are hopelessly ill. Often the patients can never recover consciousness, or they endure pain which cannot be relieved without sedatives. Medical science uses its skill to prolong life an additional day or month, often to utilize the patient to observe the effects of medicines on the body. Pure science has no other course except to utilize every means at its disposal to prolong human existence, and to use the body of the victim for any experiments which promise to add to the fund of scientific knowledge. Yet many physicians and surgeons are not satisfied. They raise questions about what is right and what is wrong. They move out of the area which is the domain of science to enter the region of value and purpose which is the field in which religion qualifies as the authority. No dedicated

servant of medical science can avoid the implications of moral and spiritual reality.

In other words, religion deals with love and mercy, beauty and virtue, time and eternity, Divine authority and human responsibility. None of these can be put in a test tube and analyzed. Yet science cannot ignore them. As religion accepts gratefully the fruits of scientific research, so science must turn to religion for insight into the values which are timeless and dependable. There is an interdependence between religion and science which neither can afford to ignore.

I recognize science as a companion in gaining additional insight into the nature and purposes of God. It is a source of satisfaction to find an increasing number of scientists who are recognizing the common interests which bind us together. There is no reason why the relationship should not become closer as we understand better what religion and science are endeavoring to achieve by their dedicated labors.

SCIENCE VS. CHRISTIANITY?

BY DR. ERNAN McMULLIN

Dr. McMullin is one of our younger and more original, scholarly philosophers and theologians. A son of Donegal, Ireland, he studied extensively both in Europe and the U.S.A. Biographic brief: B. Sc. in Physics (with honors), Maynooth College, Ireland; B. D., Maynooth Theol. Seminary; ordained a Catholic priest; did research in theoretical physics, Institute for Advanced Studies, Dublin; Ph. D. in philosophy, University of Louvain, Belgium; advanced studies in philosophy of science, Yale University, U.S.A.; Professor of Philosophy of Science, Notre Dame University, Indiana, since 1954; author of numerous acticles on philosophy of science; translator of A. Dondeyne's Contemporary European Thought and Christian Faith *(1958).*

IT is a commonplace to remark that the growth of natural science, with its attendant technology, has contributed to mass defections from traditional Western religions as well as to various de-supernaturalizing tendencies within those religions themselves. Atheism or agnosticism on the one hand, a bland and facile scientific humanism masquerading as "modern Christianity" on the other, these appear to be the most striking effects upon religion of four centuries of accelerating scientific discovery.

One of the central facts of our time is the serious dislocation of traditional Russian religious belief. This dislocation has been associated not only with a smoldering new political and social ideology but also with a deliberate and—so far as

one can judge—relatively successful use both of the results and the spirit of modern science with a view to breaking down the older beliefs. Again, the recasting of the rural civilization of England in the industrial mold that permitted her to dominate the nineteenth century and still survive as a major power in the twentieth has been accompanied by an almost complete abandonment of Christian belief among the anonymous millions in mine, factory and office.

The purpose of this brief chapter is not to recount or question facts such as these, but to ask about their significance, and in particular to pose perhaps the central question facing Western man at this parting of the ways: Are the religious beliefs that have gone to the making of the Western cultural tradition contradicted, or at least superseded, by the massive successes of empirical science and technology?

It is safe to say that science has made Christian belief psychologically more difficult for the average person today than it was fourteen hundred or four hundred years ago. The weighty obstacles to belief that it raises are not in the nature of specific scientific positions, claimed to be in opposition to specific religious beliefs. This sort of conflict has occurred, but on the whole is marginal to the real problem. Far more fundamental is the absorption in things technical and material as well as the acceptance of scientific modes of explanation as all-sufficient that seem to have gone hand-in-hand with the historical advance of science.

Faced with this challenge, there are different attitudes a Christian might assume. He might easily tend to pessimism. Science as an independent and world-transforming source of knowledge and power is not only with us to stay but is clearly destined to shape men's minds and beliefs more and more as time goes on. It has an immediacy and an effectiveness that the Gospel message, unspectacular in *its* worldly effectiveness, may find hard to match. Reflections such as these can all too easily lead the Christian to an unreasoning and deep-seated distrust of, and even opposition to, the enterprise of science in general. He is tempted to treat it as a competitor of the Gospel, something whose potentialities for evil far out-

weigh those it possesses for good. In this event, he will never come to understand the world which God has placed around him nor the society in which he lives; his reaction, though understandable perhaps, is nonetheless unjustified and in the long run disastrous.

At the other extreme is the optimist on whom science has made no "theological" impact whatever. Science to him seems a peripheral affair; it has added importantly to the comforts of mankind, but has raised no essentially new problems of a theological sort. Needless to say, such a view would rarely, if ever, be met with among scientists. It fails to recognize the plain fact that science is a radically new force in both the intellectual and the practical orders. Science illuminates the nature of man and his world in a way that nothing else could; it lights up the furthest pages of history; it poses moral problems of an altogether novel scope and complexity. Since Christianity is so firmly rooted in history, since its central concern is human destiny, it simply *cannot* remain indifferent to the probings of science.

The explanation of revealed and traditional religious truths and their reformulation with the aid of new instruments of thought and discovery is absolutely essential to the organic life of the Church. Greek philosophy provided the means and some of the inspiration that went to that wonderful development of doctrine that was the glory of the medieval Church. In a not altogether dissimilar way, much of the development that has taken place in the last century (in the area of Scriptural interpretation, for example) has been influenced by the new insights that science has brought to old questions.

The Christian cannot but rejoice at this. Any view which tends to seal off science and religion irrevocably from one another must be firmly rejected. In the past such dichotomies have provided an easy way out for some who were troubled by incessant conflicts between their religious beliefs and the sciences of the day. If the two are of their nature quite separate, then conflicts between them must be due to some misunderstanding on one side or the other—a comforting

doctrine indeed! One might dally, for instance, with the idea that science deals only with the "phenomena," the appearances of things, whereas theology and philosophy alone can reach down or out to "ultimate causes." This attractive but highly dangerous combination of positivism and potential dogmatism has had its day. Or one might urge that religion is concerned only with the quality of the relationship between the individual soul and God; nothing else matters to it. Science is irrelevant to this relationship, however relevant it may appear to particular formulations of religion in creed or dogma. But this view clearly tends to make of religion an almost nonintellectual, and therefore nonhuman, activity, involving emotional assent but no understanding to accompany and safeguard it. None of these varied reactions to the reality of science on the part of the Christian believer appears satisfactory. They do violence either to the nature of science or to that of Christianity, or to both.

Can science *really* satisfy man's aspirations to the full? It is true that it relieves him, in part, of his bondage to matter. But can it relieve him of his servitude to his own weakness and to the wickedness of others? Can it provide man with a set of directives that will firmly guide his moral life? The answer is: no. Science can aid ethics in many ways; indeed, in some ways it is indispensable to it. But it is not true that it could, entirely on its own, support an ethical imperative that could speak effectively to the wayward human spirit. It has failed dramatically in this respect in the past. Germany was the most scientifically advanced nation in the world in the 'thirties. Yet its science in no way guided it when the forces of Nazism began to undermine the whole moral structure of its political and social life. And when it dealt hideously with millions of defenseless Jews it did so, cynically, in the name of science. It would seem that there is ultimately no way of turning the theories and techniques of science into moral directives, of turning description into prescription. The sociologist and the psychologist can tell us what people do; they can tell us—up to a point—why they do it; they can even say

what they must do if they are to achieve some stated end. But they cannot tell us what people *ought* to do.

There is a terrible logic about what may come next. If science cannot guide men as it would missiles, it is because men are free. And so, all insensibly, it must make them less free if they are to be manipulated as the elements of a theory. Only thus (it is argued) can the end the scientist has in mind be achieved. The fact that others may be unwilling to code their rights is played down; the mighty powers of science are turned to the perfecting of techniques of propaganda and to brainwashing. Science in such a case is not only not the basis of moral order—it has been the means of replacing such order with tyranny. The will of a self-chosen few or of a mythical collectivity has arbitrarily broken man's most precious possession. Orwell's *1984* is not yet with us, but those who would see in science the sole source of moral guidance are surely hastening it on its way.

Can science by itself give an account of human destiny that makes man anything else than a by-product of impersonal cosmic forces? Once again, the answer is: no. The individual human life, in such a case, is a brief flash of light in the darkness. It has no real meaning, no place; man is lost in an insignificant corner of a dark and hostile universe, a universe to which his only positive response seems to be the self-frustrating one of the would-be conqueror. Nor does it avail in such a pass to substitute Man for individual men in order to find somewhere a justification for talking of "human" destiny. Huxley speaks bravely of "Man's" upward climb, of "his" evolving social forms, of the triumphs that await "him" in the future. But who *is* this "Man"? And what has "he" to offer by way of consolation to that doomed fragment of "himself" that cowers at this instant before the awful imminence of annihilation? It is only by calling upon a spurious solidarity, by collapsing all men, past, present and future, into a single immortal, but fictional, evolving entity, with an infinity of heights to scale still ahead of it, that the terror of the meaningless can be diminished for those who no longer admit other sources of meaning than science. This is a

slender cord indeed on which to hang the burden of human decision and human sanity.

If this cord is strengthened by a powerful social ideology, as in countries under Soviet rule today, it can, for a time at least, bear weight. But without some such help as this the world of science without God leads inexorably to despair and absurdity, as many of the existentialist philosophers of Western Europe, already alienated from religion, have been claiming for a generation past. In their view, anguish and despair are characteristic of the human condition; the never-ending "progress" promised by technology is a snare; and the net effect of science is only to lead men farther and farther away from those categories of experience which would enable them once and for all to realize the ultimate futility of human decision. In countries twice ravaged by technological warfare in one generation such a reaction is hardly unexpected.

That the world-view which science can, entirely on its own, generate has been tried and found wanting is of course no proof for the claim that it will never succeed in such an effort or for the claim that religion can do better. After all, religion has had some pretty notable failures in this regard, too. In an era of dizzying—and accelerating—change it is very difficult for the average man to establish a world-view that would bring even a modicum of sense and value to the enterprise of living. It is up to religion to justify its claims in this domain, and this justification has been rendered more psychologically difficult, as we have seen, by the competing claims of the scientific prophet. Our concern in these paragraphs has been to show that the central one among these latter claims, namely that the religious world-view has been superseded or otherwise rendered idle by the advance of science, is not borne out by experience.

Ought we to think of God as an "Intervener" in the universe, as a Maker who sometimes has to make adjustments to His handiwork, or supply for the inadequacies of its causal processes? The answer of course is: no. God did not simply fashion the universe out of materials He found at hand, nor

did He bring it into being *x* billion years ago and somehow endow it with the capacity to carry on independently of Him. If He had done this, He would at most have been the Fashioner of the universe; not its Creator. It would depend on Him for the way that it is, the sorts of things that are found in it, and the kinds of events that happen in it. But it would not depend on Him for the fact of its existence.

What is specifically Christian about the notion of creation is that it expresses a relation of *total* dependence, and one into which (from the side of God) time does not enter. Creation is a single act of Omnipotence in which time itself, the whole of history with all its regularities and irregularities, comes to exist in an undivided way that transcends time. It is not just something which happened a long time ago; if it were, the rest of time since then would be caused but not created, and God himself would be caught up in the temporal process. He holds in being in equal fashion all things at all times, and this conserving act is identical with the single act whereby He creates all things *and* all times. He endows the universe with a certain intelligibility which manifests itself chiefly as a close-linked causal texture, the "causes" here being uniformly acting natures. Without this uniformity to guide them, minds other than the Creative Mind could not grasp the temporal process at all. It is in these terms that the notion of a Divine "intervention" has to be explained.

There are, basically, three ways in which one might talk of God's "intervening." First, He might himself enter history and become part of it, as Christ did. Second, He might bring about an unusual ordering of events as a special religious sign to draw man's attention to a person or an event. This we call a miracle. The intelligibility lacking in such an ordering from the scientific point of view is compensated by the significance it gains within the religious pattern. Third, He could cause something to be which the universe requires for its fullness of functioning, but which it is unable to generate, so to speak, in its "normal" mode of acting.

Now, "interventions" of the first and second kinds are central to the whole Christian view of history, and if they

seem surprising to the scientist, this simply reminds us that people sometimes have to be surprised into faith, as the Apostles were. Once the closeness of the creative link between God and His universe is understood, such "interventions" are seen to be natural—some would even say inevitable. But "interventions" of the third kind are another matter entirely. They seem to point to a radical defectiveness or insufficiency within the universe itself, a lack of the dynamism it requires in order to reach its proper goal. But it is hard to see why such should be the case in the work of an omnipotent and omniscient Creator. Yet before the advent of science it appeared that the origin of every single kind of living creature had to be traced to a special Divine "intervention" of this third kind. In a creationist world-view this constituted a serious incoherence, though one usually overlooked.

What science has done, then, in eliminating "interventions" of the third kind is not to eliminate God, but rather to eliminate an embarrassment to traditional creationism. The picture that emerges today is the sort of one that St. Augustine, the theologian who meditated most on these problems of creation and time, was groping towards. But he was prevented from reaching it by the belief he shared with the men of his time in the fixity of species and the shortness of past history. Today's picture is that of a world in which every entity is bound up with every other, one where the past can be discerned coiled up within the present. In it man has a special role to play. In his body millions of years of unimaginable dark strivings come to their point; the interplay of a thousand laws of nature and the billions of apparently contingent meetings of molecule with molecule, cell with cell, animal with animal, here find their center.

Were one to look at man simply as a physicist or biologist might, it would seem fanciful or conceited or simply pathetic to see him thus, the meeting point of the ages. After all, one has only to think of the blind alleys and the innumerable kinds of success other than man along the road of evolution. But if one finds in man an immortal spirit that can deny or

love as it chooses, and if one sees in the universe the work of an omnipotent Creator, there is no mere chance about the process whereby each of the two, man and the universe, comes to carry the other within itself.

This vision of man and his world is a stirring one; it is one that neither Christian theology nor natural science could stretch out to unaided. Only by their collaboration can it be assured.

IS THE MIRAGE LIFTING?

BY DR. WILLIAM CHILDS ROBINSON

Dr. Robinson's ecclesiastical home is the Presbyterian Church in the U.S. (Southern Presb. Church), where he is honored as a great scholar. But he is known far beyond his Church boundaries, too, as a man of unusual erudition. Biographic brief: M. Sc., University of South Carolina; B. D., Columbia Theol. Seminary; Th. M., Princeton Theol. Seminary; Th. D., Harvard University; advanced studies, University of Basel, Switzerland; ordained to Presb. ministry; Professor of Historical Theology, Columbia Theol. Seminary, since 1926; lecturer at prominent schools of learning and international congresses; author of many books and articles.

IT is just a long century since, in 1859, Charles Darwin published his *Origin of Species by Means of Natural Selection.* If one may date from one's entrance into high school, for almost half of that time the writer of this chapter has been an interested observer of the place of Darwin's theory in current thought. These observations indicate a lessening of the dominance of the dogma of evolution with the passing years of the twentieth century. There are rifts in the fog, or if you please, the mirage seems to be lifting. This can perhaps be indicated by noting three representative viewpoints among the many scientific voices.

Dr. James Woodrow's Evolution

In college an old Lutheran professor suggested that even if organic evolution could be proved, it would apply only to

the body, not to the mind or spiritual nature. The rocks, he stated, preserve no fossilized minds, however much modernists may enjoy using that term to describe opponents who show a bit of backbone.

The professor's remarks were in line with the hypothesis set forth by Dr. James Woodrow of Columbia, South Carolina, in the second half of the nineteenth century. Dr. Woodrow held that between science and Scripture one should expect not harmony but *non-contradiction.* Thus he taught that science might supplement the Scriptural account by showing the long vistas in which geological changes took place, and that man may be older than Usher's three-centuries-old figures indicate. Woodrow further held that man's body was probably evolved from animal ancestry, but that his soul was a direct creation immediately implanted by God.

This hypothesis has been more recently expounded by Dr. W. P. Paterson, who told me that he arrived at his view independently of Woodrow. Both men used the same illustration or analogy, namely the theological hypothesis that babies derive only their bodies from their parents while their souls are directly created by God (creationism). Dr. B. B. Warfield suggested that Calvin's *Institutes* might be interpreted in similar fashion—an interpretation of Calvin which, however, is negatived by his commentaries.

Operating with a lowered doctrine of inspiration, the present-day Brunner derives man from animal antecedents, but recognizes that the spirit which distinguishes man from the beasts cannot be explained on a naturalistic basis.

According to Woodrow's "mediate evolution," or "mediate creation," God did supernaturally intervene in the origin of man, and thereafter did intervene by other mediate creations or miracles to save man from his fallen estate. His term "mediate creation" or "mediate evolution" constitutes a third category alongside the categories of immediate creation and of evolution.

The older divines defined creation broadly enough to include both immediate and mediate creation. Wollebius (*Compendium V*) states, "Creation is that by which God

produced the world and the things therein partly out of nothing and partly out of matter inapt naturally for that production, for the manifestation of the glory of His power, wisdom and goodness." Warfield asserts (*Bible Student,* July, 1901) that "by 'mediate creation' is really meant the truly creative acts of God occuring in the course of His providential government, by virtue of which something absolutely new is inserted into the complex of nature—something to the production of which all that was previously existent in nature is inadequate, however wisely and powerfully the course taken may be led and governed—something for the production of which there is requisite the immediate 'flash of the will that can.' " Thus, Woodrow's mediate evolution differs from "theistic evolution" under which anti-supernaturalists like Otto Pfleiderer and Ernst Troeltsch exclude the category of mediate creation (miracles) and make evolution account for all the subsequent modifications after the primal act of immediate creation.

The late E. Y. Mullins insisted that what mattered most was the unifying center of one's world and life view. Do we believe in "God the Father Almighty and in Jesus Christ His only Son, our Lord," or do we believe in "an eternal flux," and "the production of all things out of their precedent conditions, through the natural interworking of the forces intrinsic to the changing material?"

Those who find the center of their thought in pure evolution can never give adequate recognition to the supernatural character of Christianity or to the glory and uniqueness of Christ. They cannot, for example, unreservedly affirm the Resurrection of Christ, as was made clear in a debate on evolution between the Reverend J. R. Stratton and Professor K. F. Mather at Harvard University during the session 1926–1927. In this debate Professor Mather affirmed the death and burial of Christ but was unable to answer the question, "Do you believe that Christ rose from the dead?" In his book *Science in Search of God* Mather has a chapter on "Miracles and Prayer in a Law-Abiding Universe" in which he takes the anti-supernaturalistic position, a position

that makes the acceptance of the actual bodily resurrection of Christ intellectually untenable. Nor does one find in his more recent McNair Lectures, *Crusade for Life,* any indication that the professor now teaches the fact of the Resurrection of Christ from the dead.

One is at once reminded of the Apostle Paul's forthright statement: "And if Christ be not risen our faith is vain" (I Cor. 15:17). On the other hand, one who finds the solution of the mystery of unity and plurality in the Triune God may hold that evolution may be one of God's many ways of working without thereby denying other modes of His working, such as Miracles, Revelation, Incarnation, Expiation, Regeneration, and Inspiration. "There are diversities of gifts, but the same Spirit. And there are diversities of ministrations and the same Lord. And there are diversities of workings, but the same God who worketh all things in all" (I Cor. 12:4-6). It may be possible to subsume evolution under Christ; but Christ can never be subsumed under evolution. In Him, through Him and unto Him were all things created and in Him all things consist (Col. 1:16, 17). Hence, a Christian can never be satisfied with a scheme which merely "smuggles" Christ in under evolutionary processes and modifies or qualifies the miracles of His Person and Ministry to accommodate the demands of naturalism.

Woodrow held to a zoogenesis [animal origin] which had its unity in God and allowed for other processes of His working such as creation and miracles. This writer would add the hope that those who follow Woodrow in his hypothesis of *mediate evolution-mediate creation* will also follow him in upholding the full truthfulness of Holy Scripture and the miracles which demonstrate the supernatural origin of Chris tianity and illustrate the glory of Christ.

On the other hand, there are certain difficulties and dangers in Woodrow's position. In later years Woodrow admitted difficulty in carrying through his principle of the non-contradiction of science and Scripture in the account of the origin of Eve. The sharp cleavage in the theory of Woodrow and of Paterson between body and soul better befits the dichotomy

of Hellenistic thought than the unity of man presupposed in the Hebrew-Christian Scriptures.

Then there is the danger that others will not stop where Woodrow stopped, but will use—indeed, have used [1]—Woodrow's name and term for views of Christ and of the miracles out of accord with those taught in the Holy Scriptures. For many the idea of progress became the rose-tinted, romantic, Victorian spectacles through which everything was seen.

Dr. H. H. Newman's Evolution

Personally, I have never found the arguments for organic evolution sufficiently strong to accept that hypothesis as being probably true. And my doubts on this subject were increased by reading a representative volume placed in my hands by a graduate of a church college. This volume [2] was prepared in a great university, but was also used as a textbook in this student's alma mater.

The editor of the volume insists on an evolution of the most thoroughgoing type, with a purely mechanical explanation of both psychology and physiology. He characterizes vitalism [that the life principle is distinct from physical forces] as being opposed to the views that have led to scientific progress and as being "largely outgrown." The doctrine of a supernatural origin of life is dismissed as "obscurantism," while the doctrine of special creation is declared "outworn and completely discredited." On the other hand he is very positive as to the truth of evolution. He writes, "at present there are no known facts contrary to evolution" and "from the standpoint of science we may conclude that evolution is proved." He adds, "Evolution is a law of nature and is proved or established as firmly as the law of gravitation."

In another volume [3] the same scientist states the scope of evolution thus: "There has been as real an evolution of the cosmos as of the solar system, of molecules and atoms as of organisms. Hydrogen atoms have evolved into more complex

[1] Thornwell Jacobs, *The New Science and the Old Religion.*
[2] H. H. Newman, *The Nature of the World and of Man.*
[3] H. H. Newman, *Creation by Evolution.*

atoms." What shall we say of the case for this all-inclusive evolution? Is the positiveness of assertion matched and substantiated by the adequacy of evidence?

First, *inorganic* evolution. In the statement above the biological authority includes inorganic nature in his conception of evolution very much as Herbert Spencer did in his older definition. But today's physicists will certainly be surprised to read that the doctrine that hydrogen atoms have evolved (and presumably are evolving) into atoms of higher atomic valence has been "proved." Jeans and Eddington have represented the movement as being in a diametrically opposite direction, so that entropy, or the disintegration of matter, has been widely accepted as the second law of thermodynamics. Dr. R. E. D. Clark, of Cambridge, has stressed entropy in a periodical article,[4] while such a convinced evolutionist as Professor Julian Huxley in a symposium dealing with the relationship of science and religion states that the trend in the universe as a whole is downward toward final uniformity—a state of cosmic death, and that only on this planet and only in the matter of living organisms is there an opposite trend, namely evolution. This means that Dr. Huxley has surrendered the doctrine of inorganic evolution to the demands of entropy.

Secondly, *organic* evolution. The editor of the volume under consideration is plainly worried by his difficulty in stating the way in which the mechanical causation, which alone is posited, has worked. He admits disagreement among evolutionists as to the co-operating factors in the mechanism of evolution and his consequent inability to state the causo-mechanical basis of the process. Returning to this thought in the conclusion, he acknowledges that "we know little about the mechanism of mutations," but he expects that in the next quarter of a century "we" may be on our way to an understanding of the causo-mechanics of evolution. This may well be a matter of concern since no less an authority than Professor L. T. More, of Cincinnati, has stated that in order

4 "God and Entropy—the Latest Phase," in *The Evangelical Quarterly*, April, 1937.

to be a scientific definition of evolution a proposed definition must also state the natural cause or method by which the transformations are brought about.[5] To which Anthony Standen, in a *Life* magazine article, facetiously adds: "The precise theory of evolution is that all forms of life on the earth today came from some original form of life by a series of changes which, at every point, were natural and are explainable by science."

Professor Newman gives attention to three possible mechanical explanations of organic evolution: those connected with the names of Darwin, Lamarck, and De Vries, or natural selection, transmission of acquired characteristics, and mutations.

Of Darwin's view he writes, "We now know that Darwin had no means of knowing that the majority of small quantative differences among the individuals of a species are merely somatic adjustments, and that, unless Lamarck's factor be in operation, these character differences could not be transmitted to the offspring of survivors." Previously he had stated that Darwin's theory of pangenesis, by which that great naturalist assumed that changes which had proved useful in the struggle for survival would be transmitted, had been entirely discredited.

Of Lamarck's doctrine he says, "Reluctant as many of us are to abandon hope in the efficacy of the Lamarckian factor, candor forces us to admit that at the present time this factor has so little in its favor as to be of no value in our attempt to explain the cause of inherited adaptations."

Dr. Newman ends by pinning his hope on the theory of mutations. And yet his language at this point is as follows: "Mutations are now known to furnish the material for selection. We have seen that the majority of mutations are changes for the worse, but unless they are seriously detrimental they are likely to persist and be passed on to some of their offspring. At long intervals a mutation of a superior sort occurs and is at once incorporated as a racial asset." This

[5] L. T. More, *The Dogma of Evolution.*

means that we are asked to believe that the tree of life climbed from amoeba to man in a purely mechanical way by means of mutations most of which are so bad that they destroy the line in which they occur.

Small wonder, then, that even a scholar whose book does not recognize the supernatural has declared that evolution is not sufficient to account for the story of organic life. As a result of his nature studies Dr. Austin Clark of the Smithsonian Institute in Washington has come to the conclusion that the phyla and other great divisions of organic life have been continuous "from the beginning" and have never integrated. Being unwilling to accept the doctrine of special creation toward which such observation points, this scientist posits the thesis of *eogenesis* to help account for the great divisions of life. By this term he means that the major groupings began simultaneously by the original life cell or cells branching out in all directions at the same time. Clark holds that this eogenesis, plus mutations and evolutions, are all necessary to account for *zoogenesis* [animal origin of man].

Dr. Lecomte du Noüy's Evolution

In some cases science has exaggerated her dicta into such inviolable laws that even God could not work a miracle: "that would be immoral." But one scientist (Standen) has awakened to the realization that this "Science Is a Sacred Cow." According to A. D. Ritchie [6] science is concerned with generalizations which are reached by means of inductions from the observation of things experienced. "Laws" are simply generalizations of high probability, while "hypotheses" are generalizations of lower probability.

An even more trenchant critique of the "almightiness" of scientific affirmations comes from Dr. Lecomte du Noüy.[7] This sober scientist distinguishes between the "human subjective laws which our intelligence has superimposed on facts" and the "true, eternal laws" which escape us (p. 14).

[6] A. D. Ritchie, *The Scientific Method* (Paterson, N. J., Littlefield 1960).

[7] Lecomte du Noüy, *Human Destiny* (New York, Longmans, Green & Co., Inc., 1947).

On this basis he admits that the beautiful unity which evolution strives to demonstrate in nature is nothing more than a philosophical or a sentimental conviction (p. 38), and that we do not have a proven line of descent but at most "traces" (p. 63) on which the story of organic evolution is projected. Each group, order, family seems to have been born suddenly, and one hardly finds forms that link it to the preceding strain (p. 79). The known forms remain separate like piers of a ruined bridge. There are real problems in the history of phyla and classes.

The appearance of a constant temperature in birds after alleged evolution from cold-blooded beings "has all the unsatisfactory characteristics of absolute creation" and thus stands as "one of the greatest puzzles of evolution" (p. 72). The evolutionary description of the origin of the eye is dismissed as untenable (p. 97).

More fundamentally, the life of vegetation is chlorophyll with a low molecular weight and a magnesium base; that of certain lower animals is hemacyanin with a very high molecular weight and a copper base; that of man is hemaglobin with a medium molecular weight and an iron base. "By no effort of the imagination can we actually conceive the passage from monocellular beings to Metazoa [multicellular, multiorganic beings], from asexual generations to sexual generations, from blood-pigment containing copper to blood-pigment containing iron" (p. 96). Similarly, there are impassable gaps between the evolution of life and that of man (p. 99). Moreover, "there is today not a single fact or a single hypothesis which gives an explanation of the birth of life or of natural evolution.... It is not we, but the convinced materialist who shows a powerful (even though negative) faith when he obstinately continues to believe, without any proof, that the beginnings of life, evolution, man's brain and the birth of moral ideas will some day be scientifically accounted for" (p. 134).

Professor Fleishman of Erlangen has been reliably quoted as follows: "The more deeply I pursued the alleged evidence for it [the theory of evolution] and sought to gain through

special investigation some essential proof of the genetic relationship of animals, the more clearly I recognized that the theory is a seductive romance which deceptively pretends to give results and explanations, rather than a doctrine built upon positive foundations."

From the philosophical standpoint Professor C. Van Til has suggested that evolution as a system of continuous change is logically contradictory to the system of classification which is no less fundamental to science. Dr. A. E. Taylor, professor of moral philosophy in Edinburgh, showed the logical impossibility of either selfhood or personality "emerging on the scene as a product of evolution." And he continued, "If we found it incredible that mere 'experienced objects' should of themselves turn into '*subjects* of experience; beings who can feel,' it is equally unthinkable that beings who can merely feel should of themselves turn into beings who can think and know . . . There must be primitive and unoriginated selfhood at the very foundation of things." And ours is "a created personality, depending for its being on supreme uncreated Personality." [8]

Coincident with this realization of the weakness of the case for evolution there is a rising sense of the uniqueness and glory of God's special *Revelation.* Accordingly, men are not so prone any more to treat the idea of God in the Old Testament as an evolution from Semitic religious thinking, but, instead, as the *Revelation* of the living God.

At the Edinburgh Congress Pfarrer W. Vischer, professor in Basel (now in Montpelier), insisted that "for the New Testament the Holy Scripture is a whole . . . the Gospel proclaims that Jesus is the Christ of Israel, promised and expected in the Old Testament," so that the Old Testament writings "are the Scriptures which are able to make us wise unto salvation through faith in Jesus Christ" (2 Tim. 3:15).[9]

In 1938 I attended a lecture by one of the more "liberal"

[8] A. E. Taylor, *The Christian Hope of Immortality,* (London, The Macmillan Company, 1938).

[9] *Proceedings of the Calvinistic Congress,* 1938.

professors in New College, Edinburgh. This professor declared that the theory of the evolutionary origin of the religion of the Old Testament had been given up in his university and that the whole matter was again "in the melting pot." After the lecture several of the students said that the same professor at the beginning of the term had taught the very evolutionary view which in the lecture I attended he repudiated as outmoded.

In his presidential address to the Society of Biblical Literature and Exegesis, delivered at Union Theological Seminary, New York, Professor W. F. Albright, while accepting many of the so-called "assured results of modern Biblical criticism," maintained that they did not carry "the implications for the religious evolution of Israel with which they are generally credited." According to Dr. Albright, Wellhausen *arranged* the Israelite data on the basis of the evolutionary historical philosophy of Hegel, which he in turn derived from Vatke, and Robertson Smith *arranged* the same data on the basis of the evolutionary historical philosophy of the English positivists. For Albright the religion of Moses, of Elijah, and of David are the same in all essentials, and the official religion of early Israel was monotheism, not henotheism [the supremacy of one god in a pantheon of lesser gods]. There was no appreciable difference between the God of Moses and Elijah and the God of the later prophets.[10]

Barth has turned his guns against the whole conception of the Old Testament as the gradual evolution of man's ideas of God, and Principal W. W. Bryden of Toronto has followed in the same emphasis. There is only one God and, therefore, the same God called Abraham, appeared to Moses in the burning bush, manifested himself to Isaiah in the year that King Uzziah died, became flesh in the Man Christ Jesus, and revealed himself to Paul on the road to Damascus. Amid the great divergences between the Old and the New Testaments Professor Walther Eichrodt finds the two bound together in the fact that through the Messiah the one God acts in promise

[10] *Journal of Biblical Literature,* June, 1940.

and in fulfillment, in Law and in Gospel, in the Old and in the New Testament (*Theology of The Old Testament*).

The loss of confidence in man and in his ability to evolve a kingdom of peace, prosperity, culture, plenty, truth and justice is driving the hopes of men back to the promises of God's Word. The new sense of Biblical eschatology [doctrine of the last things, or the end of the world] means the repudiation of idealistic evolution which had no place for the supernatural resurrection, and which, in some cases, even dismissed immortality as "the last enemy." Feuerbach substituted the historical future, the future of humanity, as that which lies beyond our grave *on earth* for anything that lies beyond our grave *in heaven.* But Professor Paul Althaus comments, "That was the eschatology of the nineteenth and the beginning of the twentieth century. Today its time is past. The belief in an advancing evolution of mankind to a spiritual-moral consummation is destroyed. . . .There has come a new hour for the proclamation of the Biblical expectation of the Kingdom which secular chiliasms [utopias, such as communism] try to supplant. . . .In it the thought of evolution is considered neither for the eschatology of the individual nor for the eschatology of the human race, but for both *death and resurrection.* The individual and history both wait for the last day. They will be perfected together." [11]

Similarly, Dr. D. R. Davies of the *British Weekly* dismisses the "comely and esthetic type of religion which is founded, not on salvation, but on the excellence of that glorious creature, man, and on the facilities of his evolution." Condemning the "policy of appeasement" by which Christian Liberalism "liquidated" the idea of hell and surrendered the bastions of the eternal Gospel of Christ to the demands of naturalism, he insists that the Church reject "the shallow evolutionary philosophy of Liberalism" as well as the revolutionary concept of Marx. It is "a fatal optimism about man and the world" to construe history as a self-contained unit, in which, by either evolution or revolution, man can bring in a

[11] P. Althaus, *Die letzen Dinge,* 1933 (published in Germany).

Utopia. Rather, we look for "the Second Coming, which by means of the Last Judgment will bring history to its conclusion, and for the fulfillment of history beyond time in that Kingdom of Glory which God, acting in a supernatural, catastrophic way, will establish under new heavens and on a new earth in which dwelleth righteousness." [12]

And in France Professor Theo Preiss, of Montpelier, insists on the temporal and concrete nature of the coming of the Kingdom of God, of the Parousia (return of Christ), of the creation of new bodies, new heavens, and a new earth.[13] Likewise, Pastor Pierre Maury, of Paris, meets the Marxian messianism by heralding "the return of Christ to judge the living and the dead with all St. Paul's and St. John's glory—the return of Christ by Whom and for Whom all things were made." [14]

12 D. R. Davies, *On to Orthodoxy*, Macmillan.

13 *Journal of Religion*, July, 1950.

14 P. Maury, *The Church's Witness to God's Design* (translation from the French).

SCIENCE OPERATES WITHIN FIXED LIMITS

BY DR. MERRILL C. TENNEY

Dr. Tenney is a widely known Baptist minister of large experience who in late years has risen to a prominent position in the Christian educational world. Biographic brief: Graduated from Gordon College of Theology, Mass.; M. A., Boston University; Ph. D., Harvard University (Biblical and Patristic Greek); ordained to ministry and successively held pastorates in Needham, Mass., Braintree, Mass., Wheaton, Ill.; in late years Professor of Theology in the Graduate Department of Wheaton College and Dean of the Graduate School; author of several books dealing with the doctrinal contents of the Bible and applying them practically to modern life and times.

THE tension between the disciplines of science and theology is almost as old as civilization. It appears in all literature, beginning with mythology and ending with modern critical philosophy.

In the ancient Greek legends one encounters the story of Prometheus, who dared to steal the fire of the gods that he might bestow it on men, for which crime he was chained to a rock, while an eagle continually tore at his liver. Although the author of the legend conceded that Zeus (theology) had the last word, he seems to have cherished a suppressed admiration for the man who had so boldly experimented in a forbidden area, and had become a benefactor of the race.

The attitude of Prometheus' chronicler has been perpetuated by numerous successors. Many scientists have assumed that the secrets of the universe can be fathomed by patient investigation, and that as equipment is improved man will progressively master the world around him. As he does so, he will be able to control it, so that he need not presuppose any supernatural origin or rulership for it. Its origin and destiny should not concern him too much; it is here, and his comfort and adornment depend less upon metaphysical theories than upon the practical deductions that he can make from the results of his laboratory experiments. Science has given him mastery of his environment by a knowledge of its component elements and laws, so that he can reconstruct or reorganize matter to suit his tasks and make it serve his purposes.

A good illustration of this mastery may be found in the common plastic of which dishes and bottles are made. Stone jars were used by the earliest man, but they were hard to manufacture and clumsy to handle. Clay pots and glass dishes were lighter and easier to make, but were fragile. Acids and salts would corrode metal. All of these were made from materials available in a natural state, but not always easy to obtain. Today chemistry has produced the new plastics which can be manufactured cheaply, and which are practically unbreakable and free from corrosion. Man has solved a problem by his own efforts.

The scientist, ~~therefore~~, often ~~operates on the assumption~~ that man can be self-sufficient. Given enough time and the proper equipment, he can solve any problem. Inoculation has reduced greatly the ravages of communicable diseases, and has almost wiped out some types, like smallpox. Construction of dams and farming machinery has increased the food supply. New types of transportation have expedited commerce and travel. Communications such as television, radio and the newspaper have made the world a neighborhood. Now astronauts are talking of exploring space and are predicting that possibly they may reach the moon in a few years. The material advancement of science in the last half century is fantastic.

Nor has science been totally unmindful of the world *within*

man. The application of experimental techniques to psychology, linguistics and social relations has given the impression that science can do as much with man himself as it has done with the material world outside. Can it by regulation of genetics, education and environment alter or accelerate his personal development into an improved type of being?

Presumably there are those who would say that it could. The modern technique of brainwashing shows what can be done to control the thinking and consequently the behavior of the masses. Under the strict regulation of an enlightened scientific state, why could not the weak and unintelligent be eliminated and a healthier and sounder race be built that would be capable of even greater feats of conquest?

In the light of these achievements, what place is left for God? Is the concept of God merely a vestigial survival of an earlier period of ignorance, when man felt the need of somebody or something to explain natural mysteries and to guide him to his decisions when he was not mature enough to direct himself? Or have the men of the "scientific attitude" ignored the central fact of the universe, that it is not a great machine, operating blindly and extruding accidentally an intelligence that can finally analyze and control it, but that it owes its origin to a transcendent Being who has devised it, who governs it, and who directs it toward some goal which He has determined, though it may not be immediately perceived?

The second of these alternatives seems the more sensible one. Although man has been able to formulate the "laws of nature," as he calls them, he did not devise them. Einstein, after years of thinking, formulated the brief and rather simple equation $E = MC^2$, or energy equals mass multiplied by the speed of light squared. This abstract statement which attempts to integrate the material universe in a single formula was the product of protracted mathematical research. From the scientific viewpoint it was a new conclusion, fraught with all kinds of practical possibilities, such as atomic fission. But in reality, as a fact of nature, it was not new at all, for it has always been true. Einstein had realized and understood it for the first time, but he certainly had not created it!

Insofar as this formula and others can be demonstrated to be workable they reveal a universe that is orderly and regulated by definite principles. Man's expanding knowledge may enable him to begin to apprehend this order, but he has not established it.

How was it established? Why is the universe orderly? Even if there is in it an unregulated or irrational element, as Heisenberg's principle seems to indicate, what holds it in check?

The existence of mind must be allowed, for man has a mind. No mere aggregation of chemicals or arrangement of physical forces can make man's mind. It is true that he can construct electronic machines that are capable of playing checkers and to beat him at his own game because their mechanism is less fallible or subject to fatigue than his, but no robot has yet built another robot that can excel it. If man has the ability to comprehend, to analyze, to synthesize, and to control, where did he get it? Can he say that his mind is the ultimate thing in existence, or is it the product of the greater Mind that brought all things into being, including man himself?

Man, as part of the cosmos, is thus himself witness to an origin greater than the cosmos. He possesses imagination; he has a will that can resist or overcome the pressure of mechanical forces. An IBM machine can calculate faster than a secretary with paper and pencil, but it can do so only when regulated by an intelligence external to itself. Man is self-directing, and is independent of alien controls.

To assert that a world as intricate as ours emerged from chaos by chance is about as sensible as to claim that Shakespeare's dramas were composed by rioting monkeys in a print shop. Scientific investigation shows that the universe contains an infinite variety of objects and actions, and yet operates according to principles which are so fixed and stable that they are exactly definable. It reflects both the variant expression of will and the uniform system of reason.

Science has never satisfactorily explained the origin of the cosmos. One of the latest theories holds that it originated

in an explosion about four billion years ago, by which an original dense block of matter was blown apart, sending the fragments hurtling outward into orbits of their own. These formed the suns, stars and nebulae of the sky around us that are receding from each other at an unbelievable rate of speed. Whether the theory be correct or not, it presupposes that at some time all matter was united and that the present system originated at one point. Whence came that united matter? Why did the explosion take place? Why should the fragments thus rudely precipitated into space move with regularity and be subject to rigid order? And what force produced the original explosion?

The origin of life is likewise still a mystery. If living protoplasm began by the fortuitous combination of amino acids in some primeval pool, activated by a chance stroke of lightning, why has the same process never been repeated? One may reply of course that the physical and chemical changes in the earth since the time when that protoplasm supposedly originated would preclude any repetition of the process. But if the conditions were artifically reproduced, would life again emerge? Synthesis of life in the laboratory, according to this theory, is a possibility, but even then intelligence must organize the conditions to produce it. Even if such a result could be produced by experimentation, it would be more of an argument *for* the existence of God than against it.

The human potential for self-direction predicates an even deeper need for God. Man may define the laws of nature and devise new applications for them. He may discover formulas which will open up new vistas of learning or of power. He cannot, however, by a purely scientific approach to the world of phenomena create the desire to use these discoveries unselfishly, nor can he establish authoritative principles for regulating human behavior. Science may determine accurately what has been done or what is being done; it may even prognosticate with some degree of correctness what will occur in the future; but it cannot legislate what *ought* to happen. Science is strictly limited in its operations, and that holds true particularly in the field of ethics and morals.

Science cannot create values, least of all values of a spiritual or moral nature.

Why should human life be superior to animal life if both are accidental products of an evolutionary process? If one argues that man's superior intelligence makes him worth more, who placed the value on intelligence? An animal may even be happier than man because it is less susceptible to frustration and nonphysical pain. As Walt Whitman observed, cows do not worry about their sins. Man does, and the existence of his conscience shows that he can perceive values greater than those that are exclusively material. Any concept or system of values must depend upon a standard that is external to man, and that declares the purpose and worth of his being. Science cannot raise or set up such a standard. It must remain in its own sphere. Nor can such a standard of values be set up by public agreement because the public of no one age or locality is wise enough to legislate for every time and clime. Yet the worth of human existence and of the process that produced it must be fixed by some criterion that will apply universally to its purpose and achievement. If there is a God who, being both wise and holy, can set the moral standards for mankind, the unification of values can be achieved and their origin can be explained as well. Honesty, truth and purity were built into the universe by creation and are tacitly recognized wherever men endeavor to achieve life at its fullest. Without God these values are inexplicable.

One may object that the foregoing discussion argues for God on the basis of need rather than of fact. Are we endeavoring to produce a God to fit our circumstances, like the *deus ex machina* of the Greek drama, who appeared to rescue the hero from an otherwise insoluble predicament? Is belief in God only wishful thinking?

When Robinson Crusoe suddenly discovered a human footprint on the deserted island of which he believed himself to be the only inhabitant he quickly concluded that he had been mistaken, though he had only one footprint for evidence. The laws of the universe and the intelligence of man

are "footprints" of a Mind greater than his own. To say that these things are only the projection of man's mind upon the formless world of phenomena explains nothing, for the mind that forms the pattern must be explained. Both the human mind and the body that shelters it owe their origin to a force beyond them. A creator is the only rational explanation.

The first verse of what this writer takes to be special Divine revelation states that God created the universe. That opening statement sounds the basic chord whose reverberations run through all the sixty-six books of the Bible. By orderly sequence, from matter to man, God brought the world into being and launched the process that we call history. In that process civilizations have risen, prospered, declined and vanished, leaving a residuum of culture on which their successors have built. Is this chain of successors purposeless? Or if purpose in history is an illusion, can life have any meaning and can any cause be worth espousing? No individual or group can survive long enough to discern the outcome of purpose, granting that it can be assumed, nor are the records of the past sufficiently full to afford a complete understanding of what has already transpired. Nevertheless one can discern that moral injustice ultimately defeats itself; that the world process moves through conflict to a goal; that the multitudinous frictions of political, economic and moral forces will ultimately reach a climax on a colossal scale. Unless the world process can come to a *rational* end, it must be "a tale told by an idiot, full of sound and fury, and signifying nothing."

The conclusion of our brief discussion is that natural science, as has been stated above, operates within fixed limits. Science works with things as they exist. That certainly does not mean that it has a field of minor importance. Its field is immense; its research deals with the incredibly colossal "handiwork" of the Creator in all its millions of ramifications. And its task has a grandeur about it that beggars description.

Nevertheless it has its own field of operation. When scientists begin to philosophize about the origin and destiny of

things in their material world they transgress their proper limits as scientists; they become either philosophers or theologians.

This writer believes in God as the Creator and Governor of all things. He also believes that man's life is incomplete without God. Man can control rivers and floods, but he cannot regulate his own passions. He can predict astronomical events for years to come, but he cannot forecast his own history. He can eradicate disease, reduce working hours, prolong the average span of life, but he has not yet made life more valuable, nor has he explained why human existence is worth perpetuation. "Scientific" living is not inherently the most satisfying. Sweden, one of the most advanced countries of Europe socially and commercially, has the highest suicide rate in the world. Man does not live by bread alone but by the revelation of God that defines his importance, sets his standards, and gives meaning to all his activities.

A personal revelation can be imparted only by personal communication. God must take the initiative in declaring His Person and purposes. According to Christian theology the central figure in a real contact with God is not a frustrated Prometheus, punished for rashness by an unfeeling and despotic deity, but the Son of God himself, Jesus Christ, through Whom the universe was made (John 1:3), and through Whom a partially wrecked universe will be restored to perfection and glory.

THE NEED OF OBSERVING BOUNDARIES

BY DR. JOHN F. PEIFER

Dr. Peifer, a prominent educator, is thoroughly versed in both philosophy and theology. Biographic brief: B. A. degree from St. Francis Seminary, Milwaukee; holder of the Licentiate in Sacred Theology degree from the Catholic University of America, Washington, D. C.; Licentiate and Doctor of Philosophy degrees from the Pontifical Faculty of Philosophy, River Forest, Ill.; was ordained a Catholic priest in 1947; is presently Professor of Philosophy at St. Francis Major Seminary, Milwaukee; did special research in the life and doctrines of St. Thomas Aquinas, and is author of The Concept of Thomism.

THE history of modern science and religion has been a history of men too quick to jump too far. When Galileo concluded to heliocentrism [the sun as center of our planetary system instead of the earth], the precipitous leaped to see a contradiction to the Bible. When Darwin formulated an evolutionary hypothesis, men leaped in all directions: atheist propagandists saw it as the final blow to religion, religionists uncritically accepted the atheistic interpretation of evolution and prepared for a life-and-death struggle, while the hypersanguine worked overtime to show an exact correlation between the latest scientific discoveries and the Bible. Neither the scientist nor the theologian nor the philosopher has had a monopoly on this "broad-jumping" tendency; many from all camps have been guilty.

Rather than start with an a priori discussion of the abstract natures of science and religion, let us start inductively. Let us see whether in the lives of scientists and the general public there has been an abandonment or impairment of religion because of science.

Many extremists in the nineteenth century had a messianic fervor about science; they thought it would supplant and eliminate religion. Yet evidence shows that their speculations remained purely speculative. Eymieu investigated 434 leading scientists of the nineteenth century, and he discovered: atheists 16; agnostics 15; believers 367; with the views of 36 unknown.[1] The German Jesuit, Fr. Kneller, has also compiled a similar list of believing scientists in the past century.[2] Moreover, in our century that has experienced an unparalleled scientific explosion, the noted poll-taker, Dr. George Gallup, found that 99 per cent of Americans over 18 expressed their belief in God; that 89 per cent of the women and 84 per cent of the men were "absolutely certain" in their belief; that 84 per cent of the women think of God as a loving Father; and that 73 per cent of the men have the same regard.[3]

So it would seem inductively established that neither the general body of scientists nor the public at large has gone to the extremes suggested by the precipitous. The fact is that, though people have been impressed by the discoveries and achievements of science, the vast majority have not been led to abandonment of religion because of them.

Why is it that the discarding of religion called for and expected by a vocal minority of scientists has not taken place? The general answer of Catholics would be: God is Truth; He is the Author of both revelation and science; there should be no essential conflict between the two ways of discovering God's truth.

The Catholic, in virtue of both his theology and his phi-

1 *La Part des Croyants dans les Progrès de la Science au XIX Siècle.*

2 *Christianity and the Leaders of Modern Science* (translated from the German).

3 *Catholic Digest,* December 1952 through September 1953.

losophy, gives a primacy to intellect. He is convinced that God is an intelligent Agent who acts according to a plan, and that man is an intelligent agent who can recognize something of that plan. God's plan for each thing is His Divine idea of what each thing ought to include. His plan for the co-ordination of all things within the universe is called Providence. Through His creative will He has accurately implanted His idea into each thing, giving it a definite structure in virtue of which it can produce true knowledge in an attentive mind. Through His Governance He guides all things unto the harmonious accomplishment of His providential plan. His wisdom "reaches from end to end mightily and ordereth all things sweetly." (Wis. 8:1). Hence St. Thomas Aquinas could write: "There is a common and confused knowledge of God which is present in almost all men, because by his natural reason man can come to some knowledge of God; for men, seeing that natural things move in a certain order, the order of which cannot exist without an orderer, perceive in most cases that there is an orderer of the things which we see." [4]

All men have the above-mentioned "common knowledge"; it is arrived at by casual observation and informal reasoning. But in addition to this ordinary knowledge there are many sources of specialized and refined knowledge available. Basically they are four: faith, theology, philosophy, and science.

First, man can know through *Faith,* which is the acceptance of God's message because of the authority of God revealing. Faith is not a blind, irrational act, for God has given evidence that it was really He, who can neither deceive nor be deceived, who was speaking. The major part of Divine revelation is concerned with absolutely supernatural mysteries, things which man would never know or suspect that they existed unless God had revealed them. Yet God has also revealed the existence of some things which man could discover for himself, but which God has also revealed so that they could be known by all, easily, and without admixture of error.

[4] *Contra Gentes,* 1, III, c. 38.

The second source of knowledge is *Sacred Theology.* Theology is the science of revelation; it mines the deposit of revelation with the tools of reason, spelling out the implications of the Divine message.

The third source of knowledge is *Philosophy.* Philosophy uses natural human reason to search for the ultimate causes of all naturally knowable things. Its starting point is not necessarily the complex experimental data of the laboratory, but usually the primary experimental data of simple but careful observation.

The fourth source of knowledge is *Science.* As the term is commonly used today, science is knowledge that is obtained experimentally and organized mathematically. It begins with the precise observation and measurement of controlled experiment, and then attempts to determine the mathematical relationships existing between the data so that future phenomena can be predicted.

What should be clear is that both the objects and methods of these four specialized sources of knowledge are different. They are four ways of discovering something of the truth which God has implanted in the universe. Throughout all history difficulties and conflicts have arisen because the practitioners of these branches of knowledge have not properly observed their boundaries and limitations. There has been a persistent tendency to usurp and imperialize. It is what Bishop Sheen calls the "Fallacy of the Uniform Method," the fallacy of taking one method of inquiry as the norm and making it the measure, the guide, the interpreter of all knowledge.

Pope Leo XIII warned against this tendency in 1893 when he wrote: "There can never, indeed, be any real discrepancy between the theologian and the physicist as long as each confines himself within his own lines, and both are careful, as St. Augustine warns us, 'not to make rash assertions, or to assert what is *not* known as known.' " [5] In the same vein Pope Pius XI succinctly declared: "Those who speak of the

[5] *Providentissimus Deus,* n. 106.

incompatibility of science and religion either make science say that which it never said, or make religion say that which it never taught." The same thought is expressed by the eminent physicist, Sir Arthur Eddington, when he wrote: "The conflict [between science and religion] will not be averted unless both sides confine themselves to their proper domain; and a discussion which enables us to reach a better understanding as to the boundary should be a contribution towards a state of peace."

As previously shown, the vast majority of scientists have usually managed to observe proper boundaries, and as philosophers or believers they have maintained their spiritual values. But though they have been in the majority, until recently they have remained a relatively silent majority. They have left the rostrum and the presses to a vocal but methodologically inaccurate minority. That minority, misled by the success of its work, has leaped to the conclusion that nothing has real existence save that which can be weighed and measured, and that the scientific method is the only valid avenue of knowledge.

The scientific method, as we see from the works of its founders, Copernicus, Kepler, Galileo, began by quite consciously and deliberately selecting and abstracting from the total elements of our experience. From the total wealth of impressions received from nature these men fastened upon only some as being suitable for scientific formulation. In accordance with their mathematical predilection, the chosen elements were those that possess quantitative aspects, aspects which could be measured. Mathematicism has an appeal for many minds; it seems to answer the innate longing of the mind for exact and perfect knowledge. Quantity is adaptable to the rigid schemas and deductions of mathematics and is universal in nature. In reality, regarded quantitatively, the most obvious note is measurability according to spatial dimensions; both things and the relations between things can be exactly expressed from this aspect; and time and the movement of bodies can be accurately determined on the basis of distance. The laws of nature seemed to be susceptible

of adequate formulation by means of mathematics, so that a symbolic and quantitative representation of nature in mathematical terms became the ideal pursued by most scientists as the ultimate explanation of the world. The attempt to explain all nature in terms of matter and motion reached its peak in the eighteenth century when Laplace was emboldened to affirm that a sufficiently great mathematician, given the distribution of the particles in the primitive nebulae, could predict the whole future of the world.

A mechanistic interpretation of nature is the inevitable result of universal mathematicism. If one holds that the mathematical method alone is valid, it follows that whatever cannot be represented in mathematical fashion is not real. The scientists were not slow to draw that conclusion. Kepler had supposed that the nonmathematical qualities actually did belong to bodies but that they were somehow less real. Galileo went further and stated that the nonmathematical properties were all entirely subjective. To be sure, Galileo linked his mathematical attitude to precise physical observation and experiment, establishing the method of modern science. But Galileo said he did not consider experimental checks on his mathematical reasoning to be necessary, and that he undertook experiments solely to convince his opponents. The Galilean doctrine which maintains that the so-called primary qualities alone are real became part of the general scientific outlook.

And so the world was reduced to a colorless, soundless, odorless series of bodies in motion. All other elements of our experience, such as our perception of color, our response to beauty, our sense of obligation, were regarded as illusory. The real world as revealed by science was conceived as a world of material particles moving in accordance with mathematical laws through space and time. God was no longer invoked as the final cause of phenomena. He was still granted the role of initiator of the whole process. But, having made matter with its properties, He then left the world to develop according to the laws of mathematical necessity. In the course of time it came to be considered unnecessary to invoke God

even for this purpose, and the way was prepared for a thorough-going speculative materialism.

This self-sufficient mathematical self-confidence held sway almost up to our own generation. It is not yet 70 years since Tyndall, in his Belfast address, claimed that science alone was competent to deal with all man's major problems; and it is not 30 years since Bertrand Russell declared that "only on the firm foundation of unyielding despair can the soul's habitation be firmly built."

Nonetheless a gradual uneasiness was developing, which was simply an awakening of the human conscience which had been almost anesthetized by the mechanical progress of the preceding fifty years. Scientists gradually became more self-conscious and more humble as they became faced with a twofold crisis: an epistemological crisis (referring to the methods and grounds of knowledge as such) and a humanistic crisis.

The epistemological crisis was inevitable, for the alliance between mathematics and experimentation is always an uneasy one. Mathematics demands a clarity, rigidity and necessity that even the most refined sense experience cannot give. Scientists began to see that the alliance between mathematics and physics, although necessary and justifiable, cannot be justified if mathematics is assumed to be the supreme type of human knowledge, still less if no other form is recognized as valid. Gradually the more reflective came to see that science of its very nature calls for a metaphysics as well as for a philosophy of nature other than mathematical. No longer did they assert that the scientific method of approach was the only valid method of acquiring knowledge about reality. Eminent men of science are now insisting that science gives only a partial and provisory knowledge of reality, and we are no longer urged to regard as illusory everything science is able to ignore.

There has also been a humanistic crisis which scientists faced, for they are men as well as specialists. The messianic optimism which thought that advances in science would produce a millennium was abruptly shattered by the very real

problems which involved them as human beings. Most important was a succession of wars in which their very scientific discoveries threatened the future of mankind. One eminent scientist wrote: "Today, when humanity is threatened with complete destruction by the liberation of atomic forces, people begin to realize that the only efficient protection lies in a greater and higher moral development. For the first time in the history of humanity, man is afraid of what he has done with his intelligence and wonders whether he has chosen the right path." [6] In addition, there have been depressions and recessions which mathematics could calculate but not eliminate; rising emotional disturbances which science could classify but not restrict; disruption of family life, tremendous increases in crime, a shocking rise in juvenile delinquency, etc. Scientists as philosophizing men began to realize that their method had restricted validity and value.

The reaction to these crises took several forms. One was an increased concern with the philosophy and methodology of science, as witnessed by the works of Whitehead and Eddington. Another was the reintroduction of "mind" to science, as noted in the works of Jeans and Eddington. These latter, however, had been so imbued with the mathematical mentality and its idealistic tendencies that they not only reintroduced mind but made it to be the sole reality. Sir James Jeans regarded the universe as but a thought in the mind of the Supreme Mathematician. Sir Arthur Eddington said that "the stuff of the world is mind-stuff," and God is described as "Anti-chance."

It is significant that just as the critical re-examination of the scope and validity of the scientific method was most pronounced in France, so too it was two French scientists who made the most striking attempts at reintroducing God and spiritual values. They were Dr. Pierre Lecomte du Noüy and Fr. Pierre Teilhard de Chardin.

Lecomte du Noüy was an internationally known biologist of the first magnitude. As we have seen above, he had been

[6] LeComte du Noüy, *Human Destiny*.

disturbed by the rapidly spreading materialism which came in the wake of an uncritical adulation of science; and he was appalled by the consequences of two world wars and the possibilities science had put in the hands of the militarists. He became convinced that since science had been used to sap the base of religion, science must be used to consolidate it. Hence in 1946 he wrote the book *Human Destiny*. He wrote: "The purpose of this book is to examine critically the scientific capital accumulated by man, and to derive therefrom logical and rational consequences. We shall see that these consequences lead inevitably to the idea of God." So he employed mathematical arguments to destroy the mechanistic conclusions of pan-mathematicism. He shows, for example, that chance cannot explain the existence of a single protein molecule of the simplest variety, much less such a fantastically complex entity as a living substance; and that therefore we must either deny the validity of mathematical reasoning or admit the existence of God. Employing the latest discoveries of scientific research, du Noüy shows that man is the result of biological evolution, to which purpose and direction has been given by a Divine intelligence, and that salvation lies within man's grasp if he will but utilize his own spiritual powers in collaboration with the guidance set down by religious teaching.

In a similar vein Fr. Pierre Teilhard de Chardin wrote his remarkable *The Phenomenon of Man,* which was published in the United States in 1959. Fr. Chardin combined the two apparent contradictories, science and religion, in the unity of his person. He was a mystically inclined priest of the Society of Jesus and an internationally respected anthropologist. As a result, his book has a message for both the scientist and the theologian which is not completely accepted by either, yet tremendously challenging to both. Sir Julian Huxley, who at one time thought that science had probably dispensed with God, wrote an enthusiastic introduction, saying: "His influence in the world's thinking is bound to be important. Through his combination of wide scientific knowledge with deep religious feeling and a rigorous sense

of values, he has forced theologians to view their ideas in the new perspective of evolution, and scientists to see the spiritual implications of their knowledge."

As Fr. Chardin surveyed the entire cosmic panorama of phenomenological data, one main impression became inescapable: the universe has been and is now engaged in a process of increasing complexification, increasing consciousness, and increasing cephalization (tendency to domination of the head). As a result of the internal force of radial energy, directed by a pervading cosmic force (the Omega point), the primordial stuff of the universe passed from the realm of the elementary atom, grouped with other atoms to form increasingly complex molecules, and eventually formed mega-molecules or viruses. Thus prepared, the cosmos moved into a new era when the first living cells appeared in the warm seas that covered the planet. Life covered the earth, and he called this sea of life the "biosphere." Then gradually more and more complex forms of life appeared. The irritability of the plant led to the sensitivity of the animal; and among animals there was a continued development and trend towards cephalization until the highly convoluted brain of the mammal appeared. Thereupon another critical point was reached, and a flame of thought burst forth, and man entered the world. With reflective thought a new dimension was added—the "thinking layer, or no-osphere."

But Fr. Teilhard did not feel that evolution had been completed with the emergence of the no-osphere. He looked at human history and saw developments parallel to those on previous lower levels. He became convinced that evolution still continues in man, not so much on the biological level as on the levels of psychology and sociology. Human evolution continues in the development of greater freedom and greater unity. Mankind, he predicts, will converge more and more on a center of attraction, eternally existing, which has governed evolution and which is called the Omega point. We have no difficulty in identifying the Omega as God. When this union with the Omega point is completed there will be a sort of collective person, which does not, however,

destroy the individual. When that happens the planet will die, but it will have achieved liberation to a new form of life, spiritual and immortal.

The vision of both du Noüy and Chardin is stirring in its spiritual implications. Yet it has been derived from the very data which led the "one method" thinkers to debase man and banish God. Neither du Noüy nor Chardin stayed purely on the level of phenomena mathematically arranged; they collected data through the scientific method but interpreted it philosophically. That is why Chardin called his method "hyper-physics" and himself a "student of phenomena, a physicist in the old Greek sense."

Now that we have entered the space age and have been impressed if not staggered by the vast expanses thus revealed, it was inevitable that "one method" thinkers, impressed only by quantity, should consider man as merely a "temporary chemical episode on a most tiny planet." It was predictable that pan-mathematicists should burble that "our particular solar system has probably not even been catalogued in the astronomical chart of the cosmic deity, if indeed there be one." But far more eminent scientists, who consider quality as well as quantity, have seen in the vast expanse of space an indication of the immensity of God, and in its order another sign of His infinite wisdom. One of our foremost space scientists, Werner Von Braun, wrote: "Is this beautiful planet Earth where we are at home not just as much a part of God's Kingdom as the empty spaces around it, or as all the other stars and planets in the universe? He instilled in our hearts the curiosity about the worlds around us, and He enabled us to acquire the scientific knowledge and the technological capabilities to satisfy it." Dr. Von Braun is but a modern witness to what David wrote under Divine inspiration some thirty centuries before about the heavens showing forth the glory of God and the firmament declaring the work of His hands (Ps. 18:2).

Religion has nothing to fear from science or the scientific method, but it must constantly warn against the imperialism of the "one method" fallacy. When scientists respect the

limitations of their method and admit the validity of other methods of discovering and investigating reality, then science and religion will not only live in harmony but in mutual assistance. As a former president of the New York Academy of Sciences, A. Cressy Morrison, wrote: "We are still in the dawn of the scientific age, and every increase of light reveals ever more brilliantly the handiwork of an intelligent Creator. We have made stupendous discoveries; with a spirit of scientific humility and of faith grounded in knowledge we are approaching an ever greater awareness of God."

THE ONE GRAND UNITED TESTIMONY

BY DR. RAYMOND W. HEDBERG

The writer of this chapter is a prominent clergyman in the Augustana Lutheran Church, a denomination of 1,200 local churches and 600,000 members. His special interest lies in the field of Christian Higher Education, where he occupies a position of leadership. Biographic brief: A. B., Augustana College; B. D., Augustana Theol. Seminary; served churches in Seattle, Wash., New Britain, Conn., Los Angeles, Calif.; presently is senior pastor of the large Arlington Hills Lutheran church, St. Paul, Minn.; Chairman of denominational Board of Christian Higher Education; Vice-President, St. Paul Council of Churches.

WITH reference to questions of cosmogony [the origin of the universe] the entire Christian Church has but a single, all-embracing answer. Structurally and in creedal details the Church may be greatly divided, but there is no division in the matter of the world's Primal Cause. Tens of thousands of churches, the world over, bear one grand united testimony every Sunday to this Primal Cause doctrine when they recite the Apostles' Creed, with the opening confession, "I believe in God the Father Almighty, Maker of heaven and earth."

It is worth while to look into the origin of this united testimony—a testimony that is faithfully repeated by millions of Christians, including many first-rank scientists, even in

this age of enormous scientific progress. How and when did this testimony originate?

The Church is a unity in proclaiming that God has taken specific measures to reveal himself to man. It was in the life of the Hebrew people that God's self-disclosure first became manifest. Devout men, aware of the questions that troubled the minds of men, were moved to declare that life here on earth is lived in the presence of a God who holds the key to the meaning of human existence. To the question, "Where did this world come from?" they answered, "In the beginning God created the heavens and the earth." To the question, "What is man?" they replied, "He is a being created in the image of God." Why does man fail to live up to his potential? How is it that he is less than what he ought to be? Why is there this haunting anxiety that grows out of the realization that one's life is out of joint? The answer was the account of the Fall of man, his departure from the way of rectitude—God's way.

These teachings which were first transmitted orally were eventually written down, and the Old Testament Scriptures became the vehicle for the self-disclosure of God in the life of the Hebrew people. The Church has not thought of these writings as a composite of the best that the minds of men could produce. Rather, it has believed that they reveal the dynamic influence of God who uses this means to disclose His character and His purposes. As the Apostle Peter put it: "No prophecy of Scripture is a matter of one's own interpretation, because no prophecy ever came by the impulse of man, but men moved by the Holy Spirit spoke from God" (II Pet. 1:20,21).

Important as these Old Testament writings are, the Christian Church regards them as the inspired prelude to the greatest revelation of all—the incarnation of God in the Person of Jesus Christ. In *His* life and work, culminating in His death and resurrection, God reveals himself most fully. Those who were associated with Him did not always understand Him, but they were convinced He was the embodiment of God. They first conceived of His mission in terms of

a restoration of Israel to a former natural glory, but eventually they came to see that His was a Kingdom that transcended the political divisions and empires of man. Reared in the tradition of their own people, with its emphasis upon the covenant which God had made with them and the law which He had given them, the disciples came to the realization that God was creating a new community, a new kind of people, through His Son. The crucifixion drove their faith to the wall and shattered some of their ideas of how His mission ought to develop, but when He appeared to them the following week very much alive, and when He commissioned them to bring the message of the Gospel to "the whole creation," they came to see the dimensions of their new role in history. When He withdrew His physical presence in His ascension, but affirmed His unseen presence with them on the day of Pentecost, they began their amazing task of declaring to the whole world the marvelous deeds of God. They became witnesses of what God had done, revealing their faith "in Jerusalem and in all Judea and Samaria and to the end of the earth" (Acts 1:8). Gradually out of their experience a literature developed which became the guide lines for the Church and disclosed the rich content of their faith.

Men who had been close to Jesus were led to put in writing the account of what He said and did, and the Church soon saw that God was using these writings to safeguard the faith and to disclose His purposes to the world. These New Testament documents were not just a verbal description of what had been happening. They were Divinely inspired Scriptures which, coupled with the Old Testament, became the Word of God to man. They were written in human language and reflected the personality and experience of the men who wrote them. But they also revealed God's loving concern for man and His willingness to become incarnate in His Son to remove the barriers thrown up by man's willfulness and pride. When men listened to what these Scriptures had to say they were confronted by the living God. He revealed to them the distance between what they were and what they ought to be, but He also reached across the chasm

to create faith, to cleanse the interior of their lives, and to lead them along the pathways of His will. Through these Scriptures God created the community of believers, a redemptive fellowship which was sustained by His own intimate presence: "Where two or three are gathered in My Name, there am I in the midst of them" (Mat. 18:20).

As the Church went about its business proclaiming its message to the generations, it became engaged in a debate with the world. Men do not readily accept such radical claims which call for the reorientation of life around an entirely new center. They challenged the Church's witness and demanded proofs for the validity of its assertions. Some attacked the fellowship from within and threatened to erode the content of the Church's faith and to accommodate it to its environment. It became necessary for the Church to answer these challenges, and one way to safeguard the integrity of its message was by the formulating of creeds. These carefully articulated documents were not attempts to compress the whole truth into one concise statement but to provide the means by which the Church might succinctly and more readily confess its faith.

The formulation which has the widest use in Christendom is the Apostles' Creed. It was not written by the Apostles but represented the common faith of the early Church. In its present form it probably goes back to about the seventh century. While there is little evidence to believe that it was written against specific heresies, it does make explicit the essential content of the Christian witness and thus provides an instrument by which the Church can confess its faith to the world at large. Its wide use in worship throughout the Church indicates that it continues to express "the faith which was once for all delivered to the saints" (Jude 1:3). In brief, it sets forth the claim of the Church that God is the Creator of all that is, that God has taken the initiative in extricating man out of the predicament in which he finds himself as the result of sin and consequent mortality, and that God has created the holy Christian Church, a fellowship in which men experience the forgiveness of sins and look

beyond death to the resurrection of the body and the life everlasting.

The challenge to these affirmations has taken many forms. In our present situation there are those who believe that the ascendancy of science with its continually expanding knowledge of the universe and its deeper understanding of the physical and mental structure of man has rendered these claims obsolete. The challenge in many cases has developed into a fundamental conflict between science and religion, and large numbers of people assume that in this struggle the Church is coming off second best.

The Church welcomes this debate, for it prompts the Christian community to articulate its faith in a more precise manner. It leads those who profess the Christian faith to reexamine their basic position and to clarify the fundamental issues. When the conversation is characterized on both sides by an earnest search for the truth and is carried on temperately and in a spirit of amiableness, the results will be salutary.

In connection with the Apostles' Creed a few general observations are in order. When Christian people declare that they believe in "God the Father Almighty, Maker of heaven and earth," they are expressing the conviction that God is the Source of all that is. The world around us did not come about in an accidental way, nor is it the result of a fortuitous series of circumstances and conditions. It reveals the working of a mighty will. The orderly processes of nature, its intricate design, its magnificent beauty—all are observable manifestations of the creative Power at work. The Bible *identifies* this "Maker of heaven and earth." It is the task of science to investigate and explore His creation, and to expand the boundaries of our knowledge of our terrestrial and celestial environment. Already the findings of science have been a tremendous boon to mankind, and there is much more to come. These discoveries have unlocked many of the secrets of how God fashioned His creation. Instead of offering a counterproposal to religious faith, they serve to

give further reason for magnifying and praising the God in whom men live and move and have their being.

When the Christian community, gathered in places of worship, further confesses in the Apostles' Creed that man needs the redemptive intervention of God to be saved from meaninglessness and from permanent destruction; when Christ is confessed as Redeemer and the Holy Spirit as ensuring the continuing presence of God in the lives of those who have been reconciled to Him; then science, also here, finds the "ultimates" for which it is always looking and searching in so many of its fields. Science, for one thing, helps us to understand the dimensions of the human problem. It brings to light the hidden dynamics of the human personality and dramatizes man's need for reconciliation to the God to whom he owes his very life.

The Church is not bashful about the claims it places before the world. It does not pretend that its assertions shall be a substitute for scientific inquiry or that one must choose between them. It deals with ultimate things, with the essential meaning of human life, and with fundamental problems of human existence. Science has its proper role, but it cannot deal with the ultimate questions. Were it to do so, it would have to step outside of its field. The young scientist who finds himself in love with the girl of his choice will not be able to use the instruments in his laboratory to verify the depth of his affection or to measure her love for him. The chemist cannot explain his love for his children by means of a complicated formula. The categories of science, so helpful within its own field, are quite inadequate when used to provide answers to questions which arise out of a different context.

Regrettably, there was a time when men of religion looked upon science as a threat, as an enemy to be throttled and put in his place. There are possibly still some people who feel it is necessary to choose sides. The thing to do is to recognize that it is the task of both science and religion to pursue vigorously their respective tasks. Each can give its testimony and its affirmations to the other. Let the debate,

or dialogue if you wish, be constructive, and let it continue with full vigor. Science will continue to unlock the secrets of the universe and will widen the scope of man's understanding. The Church will continue to proclaim its belief that this is God's world and that the fundamental business of life is to do business with Him, speaking in all reverence.

The ultimate questions cannot be set aside. It is when men face them honestly and permit God to work His purposes through them that they reach their proper and highly rewarding goal.

IS FAITH FALTERING BEFORE THE SCIENTIFIC ADVANCE?

BY DR. GENE LUND

The writer of this chapter is a true son of Gustavus Adolphus, the great hero-king of Sweden, of the early sixteenth century. His is the faith of that young stalwart of long ago, enlightened and brought up to date by an extensive education, both in the U.S.A. and abroad. Biographic brief: B. A., Gustavus Adolphus College; B. D., Augustana Theol. Seminary; S. T. M., Hamma Divinity School; Th. D., Princeton Theol. Seminary; advanced studies, The Royal University, Lund, Sweden; ordained to ministry of Augustana Evangelical Lutheran Church; presently Professor of Religion, Concordia College; author of a large number of articles and reviews in leading periodicals.

IT is a commonplace to say that people today are living in a world whose ethos is far different from that of a century, or even a generation, ago. There has been a rather violent transition, and much of the mystery and awe which formerly surrounded human life has been lost in the transition. One result of the change has been a weakening of man's sense of dependency. An attitude of self-sufficiency is growing apace. The present general mood is fairly well reflected in a revised version of the familiar nursery rhyme, quoted by the late Dr. Peter Marshall in one of his sermons:

"Twinkle, twinkle, little star—
I know exactly what you are:

An incandescent ball of gas,
Condensing to a solid mass.

Twinkle, twinkle, giant star—
I need not wonder what you are,
For seen through spectroscopic ken
You're helium and hydrogen."

The former attitude of wonder and trust has in large measure been replaced, subtly but surely, by one of confidence, and even, in some quarters, cocksureness. The major factor, of course, in the great change has been the scientific advance of the past several decades, and especially of the last decennium. Secrets securely locked against the intellectual efforts of man for untold ages are now commonplace knowledge far down in our educational structure. The Geiger counter, the kevatron, the spectrophotometer, and other tools of the trade, have actually produced a new and in a sense revolutionary *Weltanschauung* (life-and-world-view).

Has the present great scientific advance weakened the claims of Christianity and loosened the pillars of our Christian faith? My answer is negative. But has it contributed to a loss of *practical* Christian faith? To that my answer would be: In a measure. In the same breath, however, I would add: But such a loss is not necessary. Let me try to explain.

When I say that there has been a loss of *practical* Christian faith I have reference, not to people whose faith is steady and normal, still less to men and women of a great and heroic faith, but I have in mind people who undoubtedly are Christian believers but whose faith is shallow, who are poorly informed as to the content of their faith, and whom Jesus would no doubt address as He once did the disciples: "O ye of little faith." Because the faith of such people lacks virility and lacks content, their ignorance of the truth of God is frequently amazing. And, pity to say, we have vast numbers of such Christians these days. And there were vast numbers of such believers in days gone by.

Ignorance, as always, breeds fear. The people I am talking about always were afraid, in a more or less superstitious man-

ner, of the mysteries of life and of the universe surrounding them. And so they clung all the more to God. But their fear is now being lifted. Scientists have been accomplishing great things; newspapers, periodicals, radio and television keep them informed of developments; and they begin to feel rather familiar with the awesome things of the past. Their hold on God begins to slacken.

Ignorance, in the case of such Christian people, also produced a feeling of helplessness. They did not belong to the group of men and women whose faith was interpreted by the writer of Psalm 124: "Our help is in the Name of the Lord, who made heaven and earth." The last phrase of that Scripture verse, "who made heaven and earth," is of course more than rhetoric, or fancy embellishment. It meant that those ancient Old Testament believers banked on God in all circumstances, and that even the mysteries of the heavens and the earth did not faze them because their almighty and all-sovereign God was the Originator of those mysteries and they would never slip out of His control. But many believers in our day did not have that kind of faith. They had a feeling of helplessness. But also this is being lifted! Man has begun his conquest of space. Man is familiarizing himself with the astounding, diminutive world of the atom, and is beginning to use the enormous powers of that world. Man is developing into *somebody!* The feeling of helplessness is being dissolved, driven off.

Yes, man is gaining in stature. Wonderful, those scientists! Those men who search the universe certainly are superior to the ones who thought that the earth was the hub of a fairly cozy cosmos—a thing of far distances, but nothing like billions of miles in diameter or extent. And the man with the atom bomb certainly is a bigger and much more capable man than the one who fought with a spear. The efficient, antiseptic individual with the white smock (and a Ph.D.) is certainly much smarter than the alchemist of olden times, who probably muttered incantations over his crude paraphernalia.

Then think of modern man's ingenuity by which he has improved man's lot in this old world and made life pretty

comfortable. The human life-span is being lengthened right along. Who knows but what a decade or two hence the average man will comfortably reach an age of one hundred years—at least. Sicknesses and plagues that scourged mankind are being rapidly eliminated. All kinds of inventions make life more easy for both men and women. The comforts of modern life are innumerable. Drudgery will soon be a thing of the past. People are becoming really happy. Or are they?

Our shallow-faith, casual, unthinking Christians secretly entertain the opinion that the Bible is a bit "off" when it tells us that God watches the little sparrows and even counts the hairs of our heads. Every schoolboy today knows something of the immensity of the universe; that, for example, it takes light hundreds of years to travel from some of the stars to our earth, even though it speeds through space at the rate of 186,000 miles per second. Would a God who created that kind of a universe bother with sparrows and hairs? The trouble with our unthinking Christians is that they don't think. The fact that God in His providence pays attention to, and sustains, even sparrows and hairs is but an indication of His infinitude, His Divine greatness. All these modern "wonders" should induce us to believe all the more strongly and deeply in His unlimited creatorial and providential power. The God of our fledgling Christians is too small!

No, faith need not, and should not, falter before our modern scientific advance. Let us just think of a number of things that occur to me.

Man will forever remain finite. Man can do much; anyone who doubts that just hasn't bothered to look around. But even after man has developed his latent powers to the fullest he will still remain finite, and the distance between him and his Creator in all respects will remain infinite. *Essentially,* as a created human being, man will never change.

W. E. Henley's "Invictus" is great poetry, but when this poet tells himself, "I am the master of my fate," he is in a poetic dream state and doesn't know what he is talking about. Shakespeare's *Hamlet,* on the contrary, states the truth of Scripture and of the ages: "There is a Divinity that shapes

our ends, rough-hew them how we will." What I mean to say is that science may make all the progress imaginable—it will forever remain subject to the will and directions of Divine Providence.

Man will also remain forever unable to create human life. Man can be an agent in reproducing life; he cannot create it. Scientists of the highest rank have attempted to create life; they are still at it, attempting to do the impossible. No one has ever succeeded. No one ever will. The creation of life remains the prerogative of God alone. Of the first human being it is said: "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living soul" (Gen. 2:7). Elsewhere in Scripture the exclusiveness and perpetuity of this Divine act is indicated: "The souls that I have made" (Is. 57:16).

Speaking of life, we can't help but think of death. The Giver of life has also retained, as His own Divine prerogative, the determination of the time when all bodily functions in any given individual shall cease. Science has done much to alleviate suffering, to heal bodies subject to diseases that once were deemed incurable, to prolong human life. But science does not have, and never will have, the power to eliminate death. That power resides in God alone, and He will once make it widely effective through the resurrected Christ.

Another important matter lies outside of the province of our scientists, even the greatest among them, and that is the laws of the universe whereby the millions of heavenly bodies are held in their courses, without deviations of the slightest sort. God established those laws, and He has maintained them through the ages. It is true that many unpredictable things are happening far out in space. Scientists cannot predict them all, or account for them. But the basic laws of the universe that control the tremendous system as a whole remain completely undisturbed. Our own planet, Earth, has through the ages held strictly to its prescribed course. If it would veer either too close to the sun or too far away from it, a disaster of indescribable magnitude would happen. But a providential Creator keeps it within rigid bounds—and you and I are

safe on that score, no thanks to the scientists (a fact they all will gladly admit).

What has been said about the laws that control the celestial bodies is of course also true of the laws that control the world of the atom. The microcosm of the atom and the macrocosm of the universe at large alike are under control of Divinely established laws—and it has been Divine mercy and loving-kindness that has enabled our latter-day scientists to detect and trace a number of those laws, thus enabling humanity to take giant steps forward in general culture. When we speak of scientific advance we speak of the progressive comprehension of the natural laws by which the world is run—laws established by the Creator. I think all of our scientists will agree with this definition. In fact, I happen to know that several of the greatest among them have in late years given evidences of genuine humility. They are not boastful. They are humble. They have caught the sense of the question God is represented as asking in the Book of Job: "Where wast thou when I laid the foundations of the earth?" (Job 38:4).

We are thankful for what our scientists have done for us. We expect great things from them in the future. There is not the slightest inclination on our part to underestimate their manifold, wonderful discoveries. And it is our earnest hope that all our scientists will join us in praying that, with so many great and new things at our disposal, nobody—but nobody!—at any time will mistakenly touch the wrong button. Also, that Hiroshima and Nagasaki will never, under any circumstances whatever, be repeated.

For our American Christian people let me wish that they approach this entire matter of science and religion sanely. Let us not pretend that the whole truth about life (including the sum total of scientific truth) can be documented from the Bible. At the same time, let us not foolishly kowtow to certain scientific godlings who deny the Bible and hold forth that their testimony is of greater moment than that of Christ and the Apostles.

In this way, I am confident, we can prevent the potentially deleterious effects of the scientific impact upon our faith.

A DIALOGUE OF GREAT MOMENT

BY DR. FELIX ABER

Dr. Aber received his extensive formal education in Germany, but is very well known on both sides of the Atlantic. Biographic brief: Doctor of Philosophy degree from the University of Breslau, Germany; graduated from the Jewish Theol. Seminary, Breslau, and was ordained a Rabbi; until 1938 was Rabbi of the Jewish community in Bremen, Germany; came to the U.S.A. and served as Rabbi in New York, New Jersey and Rhode Island; is at present Rabbi emeritus of Temple Beth-El, Ithaca, N. Y.; chaplain at Willard State Hospital, N. Y.; Past President of Rhode Island Rabbinical Association; member, Rabbinical Assembly of America, New York Board of Rabbis, Association of Mental Hospital Chaplains; author of numerous articles in Jewish books and periodicals.

MALACHI, the last prophet in the Bible, says: "They that fear the Lord speak often to one another, and the Lord listens, and hears, and a book of remembrance is written before Him" (Mal. 3:16).

Such a dialogue, this time between scientists and theologians, was started in the preceding volume, entitled *The Evidence of God in an Expanding Universe.* They were scientists, the speakers in the first volume. In the present volume the speakers are clergymen and theologians. Both sides in the dialogue have in common a positive attitude

towards religion and science, are aware of the inroads atheism has made under the guise of science in the realm of faith, and join hands to find the proper relationship between religion and science, safeguarding their autonomy in their respective realms.

Considering times and circumstances, the author of this chapter considers such a dialogue of great moment and hopes that it may prove a great blessing and of true and widespread benefit. Being a Jew, he proposes to consider the matter in hand from a Jewish viewpoint.

For the adherents of traditional Judaism God, the Creator, has given to the scientists, as to all men, everything; what they are, what they have to work with, and the goals they pursue. In science, as in all branches of knowledge, the scientist is a creature of God; the object of his research—the universe—is God's creation; and the quest for truth, the motivation of his studies, is a God-given impulse. Man owes his very existence to God: "Know that the Lord is God; it is He that made us and not we ourselves." The universe in which we live and which we explore belongs to God: "The earth is the Lord's and the fullness thereof, the world and those who dwell therein." The search for truth is one of man's noblest aspirations: "Lead me in Thy truth and teach me, for Thou art the God of my salvation." The agency and instrumentality of this search for truth, the ability to think, cannot be conceived without an enabling Power: "Who has put wisdom in the inward parts and given understanding to the heart."

Judaism was rarely in conflict with science based on reverence for God. In the weekday *Amida,* or *Sh'monay Esray,* the central prayer of every service, first consideration is given to the petition for knowledge and understanding: "Thou favorest man with knowledge and teachest mortals understanding. O favor us with knowledge, understanding and discernment from Thee. Blessed art Thou, O Lord, gracious Giver of knowledge." [1] The Torah establishes first in the field of evidence in the administration of justice, but

[1] Joseph H. Hertz, *Authorized Daily Prayer Book,* 1948, p. 137.

also as a general axiom, the principle so important for scientific research: "You shall inquire and make search, and ask diligently, until you establish the truth" (Deut. 13:14).

Judaism puts the emphasis on deeds rather than on creeds. Not the formulated confession of dogmas but the conduct of life in accordance with the Divine commandments, the *Mitzvoth,* identifies the religious Jew. By so doing Judaism gives life to its convictions. This accent on deeds, not on creeds, left the mind free and it reduced in Judaism a possible area of friction between religion and science.

The foundation of Jewish beliefs finds its expression in the *Sch'ma,* the solemn declaration of God's unity and the acceptance of His sovereignty: "Hear, O Israel, the Lord our God, the Lord is one" (Deut. 6:4). Monotheism, the oneness of God, is more than a bare and barren arithmetical conception. It has its implications not only for religion but also for science. In the realm of religion it asserts man's undivided loyalty to God and enables him to serve God "with all his heart, with all his soul, and with all his might." Moreover, it establishes the natural unity of all mankind. As for science, under the aspect of monotheism the universe is no longer the scene of rivalry among deities, as conceived by polytheism and dualism. All conflicting forces are marvelously harmonized in their totality: "He maketh peace in His high places." In a way the conception of monotheism has made possible the working of modern science, the assumption of exactitude and permanence in nature's law. There is a unity and interaction in the structure of things by reason of the unity of their Source: God is one. The scientists enters his laboratory in the well-founded knowledge that the laws which were true yesterday are still valid today and are so for the duration of the universe.

Except for the immutability of natural law all scientific research would be rendered meaningless and futile. God is one, and no other deities can upset His order, for the simple reason that they do not exist. Nor does the one God rule the world arbitrarily. According to the understanding of Judaism, God has limited His omnipotence by His holiness.

"Thou hast a mighty arm, strong is Thy hand, but righteousness and justice are the foundation of Thy Throne, steadfast love and faithfulness go before Thee" (Ps. 89:13,14). Appreciation of knowledge, encouragement of the questioning mind, freedom from formulated dogmas, the order and permanency of the universe, flowing from the reality of monotheism, all these factors have contributed to a healthy climate for the scientist.

Jews have a long history of harmonious relations between religion and science. From the Talmudic age down to our own time it was not a rare occurrence that great teachers of Judaism were at the same time well at home in the sciences of their age. There was, for example, intense interest in astronomy, caused by the necessity to compute the religious calendar. Originally the appearance of the new moon had to be testified by eyewitnesses before the Sanhedrin, the highest judicial court in Jerusalem. When circumstances forced the abandonment of actual observation some of the sages of the Talmud were eager to acquire knowledge in astronomy. They ingeniously adjusted the lunar months to a cycle based on the solar year, to make sure that the festival of Passover would always occur in the spring. Mar Samuel, a sage who lived circa 200 A.D., claimed that he was as familiar with the paths of the sky as with the streets of Nehardea, in Babylonia, where he was the revered head of a famous academy.

This development is of particular interest in another era of Jewish history in which the scientific interest of religious thinkers helped pave the way for the beginnings of modern science. In medieval times the genius of Moses Maimonides excelled equally in Jewish law, philosophy, physics and medicine. He was able to blend his stupendous knowledge of the Jewish heritage with the teachings of Aristotle and Galen. He could serve as the revered judge deciding religious problems after a long day spent in his capacity of court physician of Sultan Saladin and Sultan Al Afdhal. He was the author of a great Jewish philosophical work, *The Guide of the Perplexed,* and at the same time gained fame because of his numerous medical treatises. It is significant that his religious

magnum opus, the *Mishneh Torah,* devotes a whole chapter to the medicine of his time. In the middle of his *Guide of the Perplexed* he describes in a lengthy chapter the physics of his time. There was no conflict between religion and science in the mind of this spiritual giant.

There were personalities of lesser degree who showed the same universality of interest. Levi Ben Gerson (1288-1344 A.D.), known under the name of Gersonides, or in the Christian world as Magister Leo Hebraeus, was a specialist in philosophy, mathematics, astronomy and physics, as well as metaphysics. He popularized an astronomical instrument known as Jacob's Staff, an improved quadrant, now superseded by the sextant. Pope Clement VI found Gersonides' description of his new tools so important that he ordered a translation of it into Latin. Gersonides' Jacob's Staff and the astronomical tables of another great Jewish scientist, Abraham Zacuto (1450-1510), accompanied Vasco da Gama on his expedition to unknown countries and were used by Columbus on the journey which led to the discovery of the New World. Zacuto was a great Spanish mathematician and astronomer, who taught at the universities of Salamanca and Saragossa until the expulsion of the Jews from Spain.

The dark centuries which followed the flourishing of science and religion in the works of Jewish thinkers brought a decline of interest in science, with the exception of medicine. But as soon as the walls of the ghettos fell and Jews could re-enter the mainstream of Western culture science prospered again among them. Today the sons of an ancient faith and an ancient people grace the faculties of many colleges and universities all over the world. They are building bridges between modern science and culture and their Jewish heritage.

The close union of religion and science in one and the same great personality can be found in the history of many cultures. Christianity and Islam can attest to the same symbiosis in their annals. We would be fortunate indeed if at some future time giants of the spirit rose again on mankind's intellectual horizon, masters of both science and re-

ligious thought. (Albert Schweitzer is perhaps the closest approach in our day.) But while we are waiting, what we can do, and ought to do, is to establish a harmonious relationship between the researchers in the laboratories and the thinkers in the seminaries and pulpits. Such teamwork already exists in many hospitals between physicians, psychiatrists and chaplains.

Scientists know very well that they are not "creating" but merely "discovering" physical laws. For religious persons every new discovery of a scientist is a new commentary on Psalm 92:5—"How great are Thy works, O Lord! Thy thoughts are very deep." A breakthrough in science into a new field of knowledge can be like a new song extolling God's glory. Every new invention for the well-being of mankind is a new act of obedience to the Divine mandate: "Be fruitful and multiply, fill the earth and *subdue it.*" In Bible times religious people marveled at the works of God. Today, when astral radiation from stars thousands of light-years away can be registered in the observatories of the astronomers and intricate instruments can reveal to us a whole microcosm in the tiniest cell, science has paved for us the way not for a *lesser* but for a *greater* belief in God. We can only be awe-stricken, to use an expression from the Jewish prayerbook, when we think of "the wonders which are every day around us" and which we take so much for granted.

While the religionist feels enriched by the results of science a change of attitude in regard to religion has been taking place in the camp of the scientists. The theologian is able to discern three attitudes: the aggressive, the detached, and the reverential attitude. In the first instance the centuries-long fight for the emancipation of science from the bondage of dogmatic religion left its marks in the hostile attitude of the majority of scientists in the eighteenth and nineteenth centuries. This attitude still lingers on in some of the scientists today. But there is a second attitude, assumed by a great number of scientists. They leave the questions of "whence," "why," "to what purpose," alone in their exploratory endeavors and occupy themselves solely with their research into

the facts. Then there is a third group of scientists, whose attitude is one of reverence. Samuel Morse, the inventor of the telegraph, was one of their representatives. When Morse sent his first telegram over the experimental wire between Washington and Baltimore, on May 24, 1844, his message read: "What hath God wrought!" Many far-reaching discoveries have stirred up the same homage to God in the hearts of both scientists and laymen.

Today the number of "reverential" scientists is growing. They are not apart from other people who have "God-consciousness in their hearts," as the great medieval Jewish poet Judah Halevi put it. Their knowledge in the field of science strikes a responsive chord in their believing hearts. They discard the position, so long erroneously held, that a Higher Intelligence cannot exist because it is beyond the grasp of the human mind. On the contrary, they admit, and even humbly and sincerely confess, the existence of a Higher Mind at work in the universe, a Mind beyond human comprehension. The forty scientists whose chapters appeared in the symposium preceding the present one—in *The Evidence of God in an Expanding Universe*—think of God as the great Designer and Creator, and they carry on their work in the manifold branches of science with a feeling of great reverence, wonderment and praise. They have been led to the conclusion that humility befits even the most ingenious among modern scholars.

As soon as the position is abandoned that law and order in nature are the result of pure chance; as soon as admiration of the great Intelligence at work, the adoration of God the Creator, has taken its place, a roadblock is removed from the searching mind and the halls of science can take on the character of sanctuaries of which it can be said, "Surely, the Lord is in this place and I knew it not" (Gen. 28:16). Then the old Biblical truth regains its validity: "The fear of God is the beginning [foundation principle] of wisdom." [2]

[2] Prov. 1:7; Ps. 111:10. (In the first passage the word used is knowledge, in the second, wisdom.)

The Hebrew text of the Bible has an admirable way of expressing the mystery of God's creative power. Today we are quite liberal in the use of the word "creative." We use it for all kinds of endeavors, important or insignificant. In the whole Bible the Hebrew word for "create"—*bara*—is exclusively reserved for God. Man can make, fashion, fabricate the things he uses; only God can *"bara,"* create. By coining a special term for God's creativity and by refraining from using it for any human activity Scripture draws a curtain before the mysteries of the origin of the universe and the reason for its existence—all in line with the prophet Isaiah's significant words: "For My thoughts are not your thoughts, neither are your ways My ways, saith the Lord. For as the heavens are higher than the earth, so are My ways higher than your ways and My thoughts than your thoughts."

The fear of God, however, is not only awareness of His existence as the greatest reality which confronts us, but it is also the controlling power in the use of our knowledge for the weal or woe of mankind. It is man's conscience. Many scientists of the nineteenth century ridiculed faith in God. The scientist of the twentieth century realizes that his research and skill have forged the key to tremendous energies. He fears that the vast power, unlocked by his ingenuity, might be used not only for peaceful ends but also for unimaginable destruction. He demands moral control of scientific discoveries lest mankind should commit global suicide. A dreadful conflict fills the heart of many a scientist, a serious internal examination vexes him while he probes into the relationship between his conscience as man and the potentialities of his work.

Science as such is neutral as to good and evil. We need conscience in the pursuit of science and its application. "Consider this strange thing that has come to pass," says Dr. H. E. Fosdick in a sermon on "Science Demands Religion." "Science has turned preacher. It mounts the pulpit. Science cries to mankind: Spiritual values that can wisely master and direct the powers put into your hands are necessities

now." [3] And a word from the *Sayings of the Fathers* comes to mind: "He whose fear of sin takes precedence over his wisdom, his wisdom will endure. But he whose wisdom takes precedence over his fear of sin, his wisdom will not endure." [4]

Modern scientists are ready to go even a step further and to extend recognition to religion's own validity. Albert Einstein, the Newton of our age, in his chapter on "Science and Religion" expresses this thought: "One can have the clearest and most complete knowledge of what is and yet not be able to deduce from that what should be, the goal of human aspirations . . . Even though the realms of religion and science are clearly marked off from each other, nevertheless there exist between the two strong reciprocal relationships and dependencies . . . I cannot conceive of a genuine scientist without profound faith. The situation may be expressed by a figure: Science without religion is lame, religion without science is blind." [5]

Science can be pursued for its own sake. But ultimately it serves human needs. Yet it can never satisfy all human needs. It can harness or release the unlimited amount of power in the elements; it can utilize the healing properties of the products of organic and inorganic chemistry; it can produce new materials for many conveniences. In short, it can provide new *things.* But it can never form a human personality, capable of facing the vicissitudes of life with courage, hope and wisdom, mastering passions within man and giving him spiritual values which make life meaningful. Science alone can never inspire man with the power of faith, sustain him in happiness and grief, guard him in success and failure, help him conquer sin by repentance, and help him overcome anxiety by confidence based on trust in God. All these attainments science cannot accomplish. Nor does it desire to do so. They belong to the realm of religion and ethics on which the scientist does not want to encroach.

[3] Harry Emerson Fosdick, *On Being Fit to Live With* (New York, Harper & Bros., 1946), p. 20.

[4] Rabbi Hanina ben Dosa (Quotation from).

[5] A. Einstein, *Out of My Later Years* (New York, Philosophical Library, 1950), p. 26.

Yet science and religion are in need of one another. They both seek to know the truth, the full-orbed truth, about life, and existence, and the universe. They seek *God's* truth.

In his famous work, *Die Religion der Vernunft aus den Quellen des Judentums* (The Religion of Reason from the Sources of Judaism), the German-Jewish philosopher Hermann Cohen says: "Truth is the link between science and religion." [6] The Talmud asserts: "The signet ring of God, blessed be He, is Truth." [7]

Religion and science should be allies. They have the same grand purpose: the pursuit of truth.

[6] Gustav Fock, Leipzig, 1919, p. 449.
[7] San Hedrin, 24 a.

THE SIGNIFICANCE OF REVELATION

BY DR. C. GREGG SINGER

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NOTE BY THE EDITOR: In view of the fact that the subject of "revelation" is being frequently mentioned in this symposium, we have invited Dr. Singer to do a special chapter on that subject, and he has graciously consented. Dr. Singer's lucid explanation should be helpful to many.

WE usually speak of *general* and *special* revelation. Revelation is the only source of the knowledge of God which is available to man and it is absolutely necessary if man is to know anything about God. Christianity (which includes

the Old Testament truths revealed to the Jews) is the only revealed religion, and consequently is the only religion which brings to man a true knowledge of God. For this reason it is exclusive and unique, and its uniqueness rests upon the fact that as the only revealed religion it teaches what man must believe concerning God and what duty God requires of him. As an inclusive term, covering all the forms employed, revelation is that act by which God makes himself known to man.

This act of revelation is self-conscious and voluntary. God is under no external compulsion, nor any obligation, to reveal himself to His creatures. Hence, revelation is of grace and in no way does it depend upon merit. It is no more incumbent upon the sovereign God to reveal himself to man than it is for Him to redeem sinful man. And yet the glorious truth is that He has been graciously pleased to make himself known to His creatures as an act of free grace.

It is most important to observe that revelation is in no way to be confused with any rationalistic approach or intuitive insight on the part of man into the nature of God. Christianity is not the result of any human search for God, nor of any "experiencing" of God. All revelation of God is self-revelation. The God of Christianity can only be known to His creatures by such a process. His nature and attributes are such that if He did not choose to so make himself known, He must forever remain unknown to them. The God of the Scriptures is a self-revealing Absolute Personality, the Source and Content of all revelation. All this revelation, by whatever means it may be communicated, in nature and grace, in creation and recreation, in the mind of man or in human history, sets forth within the limits of human comprehension the essence of the infinite and sovereign God.

Although this revelation is not rationalistic in the sense that it lies within the power of the human mind to achieve such a knowledge of God, by its own intrinsic capacity it is rational in the sense that it contains, and presents, propositional truth. Although it is not rationally achieved, it is rationally comprehended through the enlightening power

of the Holy Spirit. The process of revelation cannot be restricted to a series of acts with which God confronts man in history; it is this, and much more, for it involves that meaning which God places upon those acts—and upon the life of man himself.

What, then, is the purpose of this revelation? Its supreme end is, and must be, God himself, His glory and His praise. If the chief end of man is to glorify and enjoy God, then the object of revelation is to enable man to fulfill this purpose. "The Lord hath made all things for himself; yea, even the wicked for the day of evil" (Prov. 16:4). The end of creation is God himself and not man, and revelation has the function of impressing man with this truth and with the reason for his being. This historic self-revelation of God is basic to all Christian theism.

General Revelation

General revelation means that God not only reveals himself in creation as such but in all natural events. All of nature is dedicated to this great goal. "The heavens declare the glory of God, and the firmament showeth His handiwork. There is no speech or language where their voice is not heard" (Ps. 19:1, 3). The fact of such a general declaration of the existence and glory of God lies at the very heart of the argument for the just condemnation of unbelievers in the first three chapters of the Epistle to the Romans, and theologians who deny such a truth find themselves under the necessity of finding some kind of universalism in redemption, such as that set forth by Karl Barth. But general revelation is not restricted to nature, for God has also given such a general knowledge of himself in the events of history, and in the human conscience as well. They convey to man the knowledge of His power and goodness. In the marvels of the universe and in the orderly operation of the processes of nature, in the regular unfolding of the seasons, in the coming of the rain and the sunshine, both the sovereign power and the goodness of God are revealed. Likewise in history, God's sovereign power is made manifest, and also His justice and

judgment of sin are clearly revealed. In the human conscience is the restraining remnant of that original knowledge of God which was given to Adam at creation.

But general revelation, in co-operation with God's common grace (meaning God's general goodness and restraining influence upon sin), has still another function which is not so often recognized. It makes possible all that knowledge which man may have of himself and of the world in which he lives. All true knowledge is revealed knowledge, and the mind of man, apart from that Divine image conferred upon him at creation, cannot know any truth except as it is revealed to him by the Author of all truth. It is general revelation which guarantees truth to man, whether it be in the field of the natural and physical sciences (mathematics, psychology, medicine, etc.) or in the study of history and the social sciences. All truth is from God, and general revelation makes it available to all men. Through its operation unbelievers may come upon tremendously important discoveries in the various sciences or in history. In short, it makes great scholarship possible for unbelievers as well as believers, in the various areas of intellectual endeavor. General revelation not only guarantees the existence and availability of truth, but the capacity of man to achieve it, for it affirms that knowing man lives in a knowable world.

It is thus quite obvious that Christian theism is, at this point, as well as at many others, totally at variance with Barthianism and all other forms of neo-orthodoxy which deny the two-level conception of truth (supernatural and natural). In its praiseworthy efforts to escape from the snares of Thomism, and its reliance on a natural theology as well as a natural revelation, neo-orthodoxy has relied too heavily on the German idealism of Kant and Hegel and succeeding strains of thought, and has, as a result, fallen into an existential skepticism which denies that man must live for the glory of God in his intellectual activities. Christian theism has nothing in common with these modern theologies which deny that man has a knowing mind and that he lives in a knowable world, with the logical consequence that in revela-

tion there can be no such thing as propositional truth. Christian theism, on the contrary, insists that man has a duty to search for truth in creation because God has so made him and has placed upon him a stewardship of mind to pursue and acquire all possible knowledge, for God's glory.

At this point the question may well be asked: If this is the case, what is the need, or function, of *special* revelation? If the existence, power and glory of God are so clearly evident in nature, in conscience and in history, are not these sufficient guides for man in the fulfillment of his chief purpose in life? Does not the insistence on some further revelation of a special kind imply some inherent defect in God's general manifestation of himself? The answer to such questions must be in the negative. The deficiency does not lie with the revelation, but with the men who read it. Its content comprises all those benefits which mankind in general is privileged to enjoy, but mankind can no longer appropriate these benefits.

If general revelation and common grace prevent man from transforming his world into a kind of hell, it is equally true that they do not make it possible for him to transform it into a heaven. The fault lies with man. God's message for the race was originally clear to man in that Divine image in which he was created. In his unfallen state man could read it aright and profit from it. But Adam sinned and lost for himself and for his posterity both the ability to read this general revelation correctly and to follow its directions. Man has neither the power nor the desire to follow that portion of his original knowledge of righteousness which remains as a remnant after the Fall. In Romans I the apostle Paul draws up an indictment of the whole human race on this very score. The heavens still declare the glory of God and the universe continues to show forth His handiwork as forcefully and clearly as ever, but the ears and eyes of men neither hear nor see what God would say to them. And sinful man has not stopped with a mere refusal to accept the message of general revelation. So great is his sin, so depraved is his nature, that he misuses and dishonors that which may be known of God and

turns it to sinful purposes. In their sinful pride men have changed the truth of God into a lie (Rom. 1:25).

While general revelation is in no sense defective, it was not designed to deal redemptively with man in his sinful state. It can only check the outward expression of sinful human nature; it cannot deal with the sinful nature itself, for it does not bring the message of redemption. For redemption God has given His *special* revelation.

Special Revelation

Special revelation is closely related to general revelation, yet is quite distinct from it. In many respects it gives to man what general revelation could have given to man if he had not fallen into sin. Its necessity is the result of man's sinful nature.

Both forms of revelation have their origin in the mercy and goodness of God, but general revelation is linked with that common (general) grace which He confers upon all men, believers and unbelievers alike, while special revelation is concerned with that grace which brings redemption. The purpose of special revelation is to defeat and overcome sin and its effects in the individual, the human race, and, ultimately, in the world of nature.

This process of special revelation has assumed two modes (one objective, the other subjective) and many different forms. God has revealed himself *objectively* to men by such agencies and means as angels, especially the Angel of the Lord, by the tables of stone on which He wrote the Ten Commandments, and through miracles. It is to be observed that in the objective method the special revelation of redemption was general, in the sense that it was available to both the believer and the unbeliever. Miracles were usually performed by Christ and the apostles in the presence of those who were hostile to the Gospel message, and the tables of stone carried stern warnings to all of Israel. The miracle of the Incarnation was known not only to the Jews, but also to wise men from the East, and to others as well. Likewise, the Resurrection was a public event known to the Roman as well as to the

Jewish world. The objective character of this redemptive revelation had the twofold purpose of being the means of redemption for the believers, and it would serve to further the condemnation of the reprobate.

But this special revelation is also *subjective* in character. In the Old Testament God spoke to His chosen instruments and vessels in dreams and visions. The public messages which the prophets gave to the people were, in nearly every instance, products of previous revelation which God gave to them in a subjective manner. The most frequent assertion of this truth is: "The word of the Lord came unto me saying." Even in the days of the apostles this method was still employed.

But the content of these objective and subjective modes, and of these various means, is the same in every case. Beginning with the promise given to Adam and Eve (Gen. 3:15), and coming more fully into view in the covenant made with Abraham, and in its renewal with Isaac and Jacob, is the promise of the Messiah, Jesus Christ the Redeemer. With a consistency not possible in any other book, all the writers of the Old Testament look forward to the fulfillment of this covenant in the Person and work of Jesus Christ. This theme is no less prominent in the giving of the Ten Commandments than it is in the prophecies of Isaiah, Jeremiah, Michah, or the Messianic promises in the Psalms. The Law was a "pedagogue" to bring men to Christ and is as much a gift of sovereign grace as the words of the prophets and the twenty-third psalm. This same theme likewise fills a prominent place in the historical portions of the Old Testament.

Special revelation, then, has to do with the salvation of the believer and has its culmination in the coming of Christ: "God, who at sundry times and in divers manners spake in times past unto the fathers by the prophets, hath in these last days spoken unto us by His Son, Whom He hath appointed Heir of all things, by Whom also He made the worlds" (Heb. 1:1, 2).

In Christ special revelation has both its object and its completion. Christ was God's last word to man. There was

nothing more to say that was necessary for man's redemption; there was nothing more to reveal to man in this life. The last days in the process of special revelation had come at the Incarnation, and it was now completed. For the finite mind of sinful man God had spoken and revealed himself in redeeming love with a magnificent and compelling clarity that had moved even a Roman centurion to declare that Christ was truly the Son of God.

We still may ask: If Jesus Christ is the completion of God's special revelation to man, what then is the role of the Scriptures in the process? In answering this question it must be noted that our knowledge of the content, meaning and purpose of the coming and work of Christ ultimately rests upon the testimony of the Scriptures, for they are the objective revelation of God to man. They do not *contain* this message; they *are* the message. It is true that revelation and Scripture are distinct in some respects, but they must never be separated in an unscriptural manner. The Bible is the written special revelation. The Bible itself is very insistent that it is the inspired Word of God, and therefore God's infallible and authoritative revelation of himself to man.

Special revelation is necessary for the understanding of general revelation. If the message which the latter conveys cannot be understood and rightly interpreted by sin-darkened minds, then special revelation becomes necessary. Without it the whole intellectual structure of the unregenerate mind is on a flimsy foundation, for unregenerate thinking can only reach intellectual conclusions by assuming that there is somewhere an objective standard of truth, and that both the world and man are rational. But such assumptions cannot possibly be derived from its own interpretation of general revelation because of the noetic effects of sin. The unregenerate mind is bound to misinterpret and misuse the natural revelation of God. It borrows these assumptions illogically from Christian theism and uses them as if they were its own. The unbelieving scientist has no valid reason for assuming a rational teleology in the universe, nor has the

unbelieving historian any ground for assuming that history possesses any discernible meaning or purpose.

Special revelation not only conveys the message of salvation; it also gives to believers a new motive for intellectual pursuits and a new spiritual insight by which they may read general revelation's true meaning and purpose. This true meaning and purpose must forever remain obscure to the unregenerate scholar, even though he have a massive command of the data in his particular field. The Christian scholar, on the other hand, looks out upon the whole of creation with a vision and insight which give him an entirely new understanding of the various aspects of general revelation. He will see in his own sphere of professional training a meaning and purpose which must forever elude the unbelieving mind, even though, through common grace, such a mind be empowered to make dramatic discoveries that greatly enhance human welfare.

The redemptive character of special revelation, then, enables the believer not only to live a life pleasing to God, but also enables him to think God's thoughts after Him, and to fulfill more worthily that stewardship of mind which is his by virtue of the fact that he was created in the Divine image and is God's vice-regent on earth.

A BRIDGE THAT NEEDS BUILDING

BY DR. RICHARD W. GRAY

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IN the present chapter the writer is limiting himself to one particular branch of science in order to show, rather in detail, how science and religion can be in agreement and can function in close harmony. The scientific discipline is that of psychology.

For too long psychologists and theologians have walked their separate ways, or, using a different metaphor, they have lived too long a time on separate islands. Considering that both are working on the same program, namely understanding and helping their fellow men, this situation should be changed. A bridge must be built between these two islands.

Indeed, it is being built in practice in those hospitals where the chaplain is included in the team along with the medical doctor and the psychiatrist. But it should be built theoretically, analytically, as well.

The psychologist and the psychiatrist have been a great help to the student of Scripture in understanding the nature of man. Many of their findings do not contradict what the Bible teaches; they confirm it. The modern psychosomatic (soul-and-body) approach to medicine helps to forge one of the girders in the bridge between psychology and the Bible, emphasizing as it does the unity of man's person, of the physical and spiritual sides of his being.

The relation of body and mind has been a problem ever since the days of the Greek philosophers. The Greeks distinguished sharply between them, saying man is a soul imprisoned in a body. Christian interpreters since the days of the New Testament world (which was a Greek world) have been unduly influenced by this Greek notion. True, the Bible teaches that the spiritual can be separated from the physical ("to be absent from the body, and to be present with the Lord"—2 Cor. 5:8), but this is an incomplete state, a transitory state between death and the Resurrection.

The expressions "soul" and "spirit" in the Bible are most frequently used to designate man in his composite totality, not just in an immaterial aspect ("body" is sometimes similarly used). In the majority of cases, though not all, the Hebrew and Greek originals translated "soul" are better rendered "life." Like, for example, in the saying of Jesus: "For what is a man profited if he shall gain the whole world and lose his own *life?*" (Mat. 16:26) Jesus was speaking about losing everything, all—soul and body.

Modern psychology has helped Biblical interpreters to recognize the physico-spiritual unity of man—an important girder in the bridge. This has not been done by discarding the Biblical data but rather by re-evaluating it. On the other hand, psychology today has a strong tendency to dissect man, separating the spiritual from the psychical. Clergymen have often concurred in this bifurcation. This error appears in a

Reader's Digest article about the teamwork used in healing at the North Carolina State Baptist Hospital.[1] It summarizes the modern practice of comprehensive healing by assigning the body to the physician, the mind to the psychiatrist, and the soul to the minister. Orville S. Walters in a review of Victor White's book, *Soul and Psyche,* correctly says that "the splitting of man into soul and psyche is an artificial and untenable division," thus agreeing with the thesis of White's book. It may be said that the exploring of man's life in the light of both Scripture and psychology leads to the conclusion that man is a living organism with two inseparable aspects, the physical and the psychical, and that the latter aspect includes the intellectual, emotional, volitional, moral and spiritual. The two aspects function as a unity.

A second girder in the bridge relates to the dynamo of man's complex personality. Modern psychology has helped Biblical scholars to see the fallacy of diagramming man in terms of the older faculty psychology. This faulty psychology again goes back to the Greeks, who regarded man as a composite of intellect, emotions and will. Recent studies have disclosed that these distinctions were overdrawn. Edward Heerema, former chaplain at the Christian Sanitorium in Paterson, N. J., came to this conclusion in the findings he presented to the Christian Association for Psychological Studies, in 1956. He pointed out that the centrum of the organic unity of man's personality is what the Bible calls the heart. It is the dynamo which directs man's personality as the physical heart powers man's body. "From it flow the springs of life" (Prov. 4:23). "Heart" is the prevailing word in the Bible designating the inner life of man. It is used over nine hundred times, while "soul" and "spirit" are used about four hundred and fifty times. In the heart, according to the Bible, originate the motivating forces necessary for man to fulfill his destiny. It is the seat of what the psychologist calls the drives: physical drives such as hunger and sex; psychical drives such as ambition, the profit motive and the gregarious

1 *Reader's Digest,* September 1959.

instinct; moral drives such as the sense of "ought"; spiritual drives such as the urge to worship. In addition to the "drives," the heart is represented in the Bible as the ultimate source of man's intellectual, emotional and volitional activity. Conscience is another of its capacities, as well as communion with God.

Though Scripture represents the heart as the source of many different types of activities, the very choice of this word indicates that these activities are all emotionally colored. "Heart" connotes emotion. Depth psychology with its insight into the power of feelings has helped theologians gain a better perspective of the Biblical thrust. Formerly, many were too greatly influenced by the Socratic dictum: "Knowledge is virtue." The old Latin-school type of education erred here, too. As a result both preachers and teachers treated people as mere intellectual units. In many quarters today there are those who still think that the proclamation of theological formulae or the dissemination of scientific facts is sufficient for man's edification. But real preaching and effective teaching require that truth be *communicated,* and that this be done with relevance and contemporaneity. Herein lies much of the power of Jesus' preaching. He knew how people *felt* as well as what they thought. For example, He was not content to argue intellectually with the Pharisees. His rapier thrusts bared their selfish desires and motives.

That intellectual knowing is not enough is reflected in the Biblical use of the word "know." It has emotional overtones. For example, the Lord said, "And this is life eternal, that they might know Thee, the only true God, and Jesus Christ, whom Thou hast sent" (John 17:3). To know God through Christ in order to have eternal life requires more than the intellectual apprehension of information, though that is indispensable. It requires a cordial embracing of that knowledge and a personal commitment. This brings the emotional and volitional aspects of man into play.

Thus far we have two girders in the bridge between psychology and Scripture: first, the psychosomatic (soul-and-body) unity of the personality, and second, the emotional

complexion of the dynamo of that personality, the heart. A third is closely related to the second. It is man's propensity for self-deception. Because the emotional is so strong in man, if often distorts the intellectual and, consequently, the volitional in man. This is what makes his thinking irrational and his actions perverse. Everyone knows what prejudice does to the objectivity of thinking and to the motives which produce actions.

This capacity for distortion is described by the psychologist under defense mechanisms, while the theologian describes it under sin. Both treatments agree that man is liable to self-deception. Freud held that the irrational forces in man's nature are so strong that the rational forces have little chance against them. The Bible says, "The heart is deceitful above all things..." (Jer. 17:9). Jesus speaks much about self-deception, especially when he inveighs against the Pharisees. He bitingly calls them "whited sepulchres, full of dead men's bones." The mind of the Pharisee rolled a stone in front of the door of his whited sepulchre so that the foul and fetid bones of his inner life were inaccessible to his consciousness.

Here is how self-deception works in the employment of a defense mechanism. When the personality will not cope with something because to do so would be too painful, it pushes it out of the consciousness. The mind leaps to the aid of this cowardice by supplying the consciousness with reasons for following a course of action other than the one which might bring pain. An example: A missionary was disturbed because her husband did not seem to be all she needed in a husband. To face this and attempt to correct it loomed as too painful a process—she might be charged with being more interested in the natural than the spiritual, and this would never do for a missionary! She dismissed her inner hurt by a rationalization: "I am a missionary and God's love for me is the only thing that really counts." Thus she repressed the natural desire to be loved by her husband. This desire, this natural instinct, was a God-given drive which needed to be satisfied. Think of the apostolic directive: "Husbands, love your wives, even as Christ also loved the Church and gave Himself for it."

This powerful drive, thus repressed, found release in a psychosomatic illness, with physical and psychological symptoms. Her rationalization could not deny the reality of a natural instinct, a reality which both the psychologist and the Bible say must be faced. The need for conjugal love has been Divinely implanted in a wife, and it requires satisfaction. So psychology recognizes. And so also the Bible teaches. There is complete agreement here.

Rationalization is but one of the defense mechanisms described by psychology and taught in Scripture. Projection is another. A guilt-ridden personality seeking to alleviate his guilty feelings is employing this defense when he harshly criticizes another for his own besetting sin. In so doing he turns the spotlight of condemnation away from himself and focuses it on another. Jesus attacks such a defense: "And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?" (Mat. 7:3).

Another defense mechanism is reaction formation. A drive seeking expression in one reaction finds expression in another because the first would be too painful. This is seen in a person who has a resentment toward another which he does not dare display. The disapproval of certain of his fellow men would be more than he could bear, so he channels the resentment into fawning and toadying and other false expressions. The Bible contains examples of the use of reaction formation as an outlet for the drive for worship (Is. 29:13; Rom. 1:18-25). Many people know God in the depth of their being, but since this knowledge demands (in terms of worship, service, and sacrifice) actions too painful to fulfill, they rationalize and produce for their comfort gods whose demands are not so great—if not idol images like those in Bible times, then modern objects of devotion. The drive for worship of the true God, which oftentimes—for faithful men—is painfully demanding, is released by reaction formation in a more convenient ritual.

Another girder in the bridge between psychology and the Bible is the understanding of the precise nature of the drives

which are distorted by defense mechanisms. Psychology has helped the theologian gauge the *strength* of these drives in the motivation of human behavior. Unfortunately, the various schools of psychology have tended to explain man's behavior in terms of but one of the drives, each school emphasizing a different one. To Freud it is sex; to Adler, the seeking of security through status; to Jung it is purpose and religion; to Horney, Sullivan and Fromm it is relatedness (love); to Frankl it is meaning in life; to Rogers it is self-integration; to Mowrer it is being at peace with conscience. After studying these theories of personality and turning back to Scripture one can see that each school stresses an understanding of a different aspect of man as seen in Scripture's light. Each theory approximates an element of truth.

One of man's most basic drives is for God. As creatures men are dependent upon God, in whom they "live and move and have their being" (Acts 17:28). Living according to this reality means experiencing this dependence and expressing it through prayer and praise. The drive to worship is one of the strongest, if not *the* strongest, in the human personality. The universality of religion is a proof of this. Thus it follows that declaring independence from God is distortion. There are no totally self-made or self-sufficient men. Feelings of dependence become feelings of insecurity when God is not men's refuge and strength. This is not the only cause of the feeling of insecurity, but it is one of the most basic. When man seeks to break away from his feeling of dependence upon God, God often reciprocates by giving him his desire. This results in isolation, and not infrequently a very clear and frightful *sense* or feeling of isolation. Many psychotics and some neurotics know the torture of isolation. According to Anton Boisen, the prevailing state of the mentally ill is that of isolation.

Another basic drive is for moral living. Scripture teaches that man was created in God's image. Because he was made like God, his Maker expects man to reflect that likeness—to reflect something of the Divine moral splendor. For that pur-

pose man was given a conscience. The conscience is man's inner law court. There is a law—God's law inscribed on the heart. There is an unseen judge evaluating actions according to that law. There are lawyers, suggestions of the mind, arguing the pro's and con's of an action contemplated or completed. There is a warden inflicting the punishment the judge prescribes. All these elements are a part of the conscience (Rom. 2:14, 15). Those depressions which result from conscience inflicting punishment have a basis in reality, and the cure for them is removal of the causes of guilt feelings, true penitence, and rededication to the God of conscience. (Parenthetically it may be said that man can experience guilt feelings not derived from God. This occurs when the law of conscience has been tampered with or the judging faculty has been perverted. This is another matter, though it is of crucial importance for both psychiatrist and pastoral counselor.)

Alongside of the drive for worship and the drive for moral living normal man has implanted within him the drive for *significant* living. Rollo May has declared that the underlying trouble with the neurotic is his failure to affirm the significance of himself as a person, or the significance of himself in this vast, mysterious universe. The Creator of man and of the universe has endowed him with the ambition to live meaningfully. When God created man He told him to subdue the earth and to have dominion over it. According to Psalm 8 man was made the vice-regent of the universe. All things were put under his feet. When man sees his day-to-day task in this light he serves his Maker, and his ambition is satisfied in significant living. When he does not, his ambition drives him to serve lower and, frequently, purely selfish ends. If things come to this pass, he sins (for selfishness is sin), and he consequently suffers (for selfishness brings misery).

In man is also the drive for relatedness, which is but another term for love. Worship satisfies the drive for relatedness to God. Fellowship satisfies the drive for relatedness to fellow man. Realizing man's need for both vertical and horizontal relatedness, Jesus summarizes the commandments in terms

of love for God and love for neighbor. Psychology has helped pastors plumb the depth of the insight Jesus discloses in His summary of the Commandments. Freud said, "In the last resort we must begin to love in order that we may not fall ill, and we must fall ill if, in consequence of frustration, we cannot love." [2] Eric Fromm has written: "Analytic therapy is essentially an attempt to help the patient gain or regain his capacity for love." [3]

Man's destiny to reflect God's image in the world must be fulfilled by love. The predominant attribute of God, the one at the basis of and coloring all others, is love. This explains the terse but eloquent Scriptural statement, "God is love" (I John 4:8). The hallmark of Christ's disciples is love. As Rabbi Leibman said: "Man must love or perish." Man finds only confusion in himself when he neither gives nor receives love. Rejection, a harrowing experience, is the state of not feeling the love and acceptance of others. And where love does not find an object toward which it may be expressed, it is distorted into hatred, resentment, jealousy or pride. The different states of the mentally ill are characterized by such distortions.

One more drive may be mentioned—the drive for self-love and self-acceptance. Psychologists, finding many people ridden with needless guilt, feelings of self-depreciation and the like, have repeatedly emphasized the need for this. Theologians have been slow to catch this insight, identifying as they did self-love with pride and pride with sin. Those who have counseled have detected in some people a self-depreciation that is baffling to deal with. A second look at Jesus' summary of the law (Mat. 22:37-39) will help forge this particular girder for the bridge. He said, "Thou shalt love thy neighbor as thyself." *"As thyself"!* Is this an argument *ad hominem?* Is He saying, "Love your neighbor as you love

2 Sigmund Freud, *Collected Papers* (London, Hogarth Press, 1924), vol. IV, p. 42.

3 Eric Fromm, *Psychoanalysis and Religion* (New Haven, Yale University Press, 1950), p. 87.

yourself, even though such love of self is wrong"? Or is *this* His meaning: "Love your neighbor as you ought to love yourself"? The latter bears the stamp of truth. This is not pride. Pride exalts the self. Proper self-love exalts God, for it loves His image in the self. Pride springs from a false view of the self. Pride is unrealistic in that it is not love of the true self but of the imagined self. Pride is sin because it is the self masquerading as God. On the other hand, lack of proper self-love is sin because it is failure to appreciate the image of God in the self.

One more girder must be forged for the bridge between psychology and Scripture. Psychology when oriented to a view of man which does not reckon with his immortality is truncated. According to Scripture human life is eternal—man is born to live forever. Human life is a pilgrimage, and at the end of the pilgrimage man is to meet his God. He must render an account to his Maker of the way he has used his energies, drives, etc. In other words, after death the Judgment (foreshadowed in the judgment of conscience). To face the Judgment unafraid man needs Christ.

Psychology should figure with these foundation facts—certainly when dealing with men and women who have been under the influence of the Christian religion. It is true that oftentimes frustrations and inner conflicts can be removed through the skill of the psychiatrist without recourse to religion, even in the case of "Christian" patients. A distorted personality among such people may find an adjustment which gives him the equilibrium to negotiate the present brief span of life. But in reality that is a pseudoadjustment achieved through appeasement.

Unless they are in an advanced stage, patients who have moved in a "Christian" atmosphere, or who are Christians in fact, and also all patients in general, have one thing in common: they have a depressing feeling of fogginess, confusion, uncertainty, instability. They have nothing solid underfoot. They need, worst of all, a reliable foundation.

Both the man of psychology and the man of religion

should direct their troubled friends to the only foundation that amidst the whirling eddies of time and life holds true, even into the eternities. They should tell about the Rock that Edward Mote sang about:

> On Christ, the solid Rock, I stand;
> All other ground is sinking sand.

FROM PRIEST TO AGNOSTIC AND BACK AGAIN

BY DR. JOHN CLARENCE PETRIE

This concluding chapter is somewhat exceptional, reflecting as it does the soul-and-mind struggle of one who has personally and actually been "through the mill," and his ultimate, triumphant conviction. The writer, Dr. Petrie, has been in charge of St. Martin's Episcopal church in Clewiston, Florida, for the past ten years. He graduated from General Theological Seminary, New York, in 1919 and was ordained an Episcopal priest. Shortly after his ordination, after violent mental struggles, he forsook the Christian faith, resigned his Orders, and for nearly 30 years filled positions of leadership in freethinking circles. In 1949 he returned to the priesthood and ministry of the Episcopal Church, proclaiming the consonance and partnership of science and religion. In late years an important side line has been his noble fight for freedom and Americanism vs. Communism, and he was the recipient of many honors and awards in this connection. He is a director of Christian Freedom Foundation.

IMAGINE yourself in a small mountain mission church in eastern Tennessee on a Sunday morning. Standing before an altar lighted with tapers is a man wearing the vestments of a priest. After he has consecrated bread and wine, using the words of Jesus, he administers Holy Communion to the little flock that kneels at the rail. It is a scene duplicated in hundreds of small chapels as well as in large numbers of vast cathedrals and parish churches.

But this particular priest is unusual. On Monday you will find him in his laboratory at Oak Ridge where he is Director of Research. He is one of the top nuclear scientists of the world. His name is William G. Pollard. He labored on the atomic bomb. The story goes that when news of the atom bombing of Nagasaki in Japan reached him he and a fellow scientist headed for the nearest church where they knelt in prayer.

At any rate, Dr. Pollard had been forcefully convinced that science by itself is not enough. There must be religion of the deepest sort if mankind was not to blow itself to bits with its newly developed lethal weapon. He reported to the bishop of Tennessee, was accepted as a postulant for Holy Orders, began a course of intensive study, and eventually was ordained to the Episcopal priesthood. All this while retaining his high place in the Oak Ridge apparatus.

I have cited the case of Dr. Pollard, but there are thousands of other scientists who find compatibility between science and religion. Practically all denominations have churches at Oak Ridge. Both Roman Catholics and Protestants are represented. And most of these churches are orthodox in theology. Two of my own friends on the project left denominations that were too liberal for something between Catholic orthodoxy and an extreme species of Protestant fundamentalism.

The most liberal denomination on the site ran the following advertisement in the Knoxville papers one Saturday: "Freethinkers, Atheists, Infidels, Pantheists—Is your philosophy of life called 'atheistic, heretical, blasphemous' by traditional churches? Then you will be interested to hear Rev. ____ preach on 'Religion without Deity or Fear' at the ____ Church of Oak Ridge." The assumption lying behind this rather startling appeal was that Oak Ridge is the home of many scientists who are religious at heart but to whom orthodox Christianity in any form is contrary to their scientific convictions. But this assumption is false. Certain scientists may find objections to the teachings of certain churches, or they may find a conflict between certain theories of science

and certain tenets of theology, but there are few if any who will assert that there is a total and thoroughgoing conflict between science and any form of orthodox religion.

Since I myself for a time rejected Christianity, considering myself an agnostic, and then regained my orthodox Christian faith, I would make the point that there is nothing in any form of science that can possibly disprove the religion of the Apostles and of the Nicene Creed. I do not for one minute admit that any scientists who seek a non-theistic religion (religion without God) are forced into their position by scientific evidence. Science by its very nature has no means for determining the truth or falsity of the spiritual. Napoleon's astronomer in Egypt is said to have reported, "Sire, I have swept the heavens with my telescope and have found no God." This he took for proof that God did not exist. But no telescope, no microscope, no other scientific instrument, can enable us to see *spirit.* Science is strictly limited to the physical universe.

How did that universe come into being? Again science has no means for answering the question. Science studies a universe already in existence, already in operation. That it can study. That it does study with ever increasing discoveries of new truth.

Where did the universe come from? Science cannot know. Its theorists have talked of an original nebula out of which by a process of evolution the world we now have has come into being. But science cannot account for the nebula, nor for the existence of laws whereby the inorganic is supposed to have given birth to the organic, and the vegetable is supposed to have changed to the animal, and the animal into the thinking "animal," man.

When scientists give us theories as to how these miracles occurred they speak not as scientists but as philosophers. Much wild guessing would be avoided if students in college were taught from the beginning of their courses that science deals with what *exists;* that the search for origin, for meaning, for purpose, lies in the fields of philosophy and religion.

A best selling book, *This Believing World,* written by a

former rabbi, Lewis Browne, opened with this sentence: "In the beginning was fear." And so, he philosophized, religion was born. But judging from the literature of the world's great religions it would be more accurate to say, "In the beginning was human curiosity." Man's mind demanded answers to such questions as "How did the world come to be?" "How account for sickness, death, and other evils?" "Why are we here?" If it be protested that the literature of the great religions is of much more recent date than we used to think, then the answer is, "Perhaps—as *written* literature." How old is the Creation account in Scripture? How old is the account of the Fall of Man? How old are the accounts of the Babylonians and others? How long were they accepted before they were reduced to writing? Religion always involves the mystery of existence. It is doubtful if fear ever outweighs man's sense of awe and wonder. Science, rather than religion, is likely to produce fear in the hearts of men.

A short time before these words were being written a scientist warned the world that within ten years a considerable number of the lesser nations would possess nuclear weapons. His statement was a warning. It was intended to arouse fear in the hearts of the world's leaders that one of the new nations, untrained in responsibility, might set loose the atomic war that would destroy civilization. Such fear is the counterpart of man's fear of the judgment of God. Fear as such is not an evil. Not to fear the consequences of wrong courses of action is to be unintelligent, imbecilic.

The first human being, Adam he is named in our Bible, was fully human, a creature of mind and conscience. He knew God. He communed with God. But he did not fear God enough to avoid catastrophe for himself and his posterity. He did not deny God's existence but he did disobey God's law. Even his disobedience was rooted in Eve's curiosity. Theologians have agreed that the real sin of our first parents was pride—a sin of the mind. Hence the Hebrew-Christian tradition emphasizes the part played by the mind in religion rather than the emotion of fear.

It has been admitted that the Jewish tradition was not

philosophic. The Bible is hardly a textbook in philosophy. Yet it teems with the basic problem of philosophy: how anything came to be. Then, as it presents us with the revelation of a moral God, it immediately deals with the problem of how so much evil can exist in a world created by this good God. Disease and death go back to the Garden of Eden, to man's disobedience. But that does not prevent the Psalms from uttering the continual cry that while the wicked enjoy the fat of the land the pious and virtuous are often in agony. The sins of the fathers are blamed by Jeremiah, only to have Ezekiel place the blame on the sinner himself. Then comes the great drama that is the Book of Job, with its defiant denial that suffering is always the sign of sin. A good God and an unjust world confront each other over and over again in Scripture. These are religious concepts; theological and philosophical at the same time; treated not in terms of philosophy in the Bible but in terms of religion. Job is silenced in his protest not by logic but by the absolute sovereignty and overwhelming majesty and power of God. Who is man with his puny intellect to question the Author of a universe as marvelous as ours?

What the Hebrews treated in terms of religion was a matter of pure philosophy with the Greeks. When contact was established between Biblical revelation and the best in Greek philosophy the thought frame of Christianity was set that has existed until the present. Aristotle had argued that reason necessitated the existence of a being who had no beginning. The medieval thinkers refined and amplified Aristotle's argument. There had to be something that was self-existent. All creation was dependent on something else. In other words, there was no way of accounting for anything unless there was a cause beyond the universe. The Scholastics gave the first cause the Latin title of *Primum Mobile, Immobile* (the First Mover, Himself Unmoved). By brilliant analysis they showed that the First Cause could not be a non-thinking machine. No machine is independent, self-existent. Every machine is the product of thought and effort on the part of a human being. Machines do not propagate. There

is an absolutely unbridgeable gap between any machine and living matter. The Univac, marvelous as it is, is the product of man. It does not think; nor will any *thinking* machine ever be invented. Nor will a *living* machine be invented. The Scholastics saw that long before the dawn of the machine age; hence they knew that the First Cause of all causes has to be a living being, a being of mind, having the attributes that human personalities have, only in an infinite degree.

Have there been times since the rebirth of my faith in a personal God that doubts have crept in? If by doubt is meant a temptation to disbelieve, yes. Many times. Why should God have created *anything*? If God is good, as analysis of the idea of the Prime Mover demonstrates, why the frightful amount of seemingly needless suffering in the world? Why all the poor wretches tortured in Communist prisons, whose numbers far exceed the victims of brutal Hitler; most of them Christians of some variety, many of them members of the clergy and religious communities? Where is God, the God of love? Is He powerless, indifferent? The emotional reaction to all this creates for the believer what is known as "the problem of evil."

But since the return of my faith these thoughts have never reached the point of deliberate doubt on my part. Always after the first emotional action the mind has come into the plot. I cannot solve the problem of evil. But my intellect tells me *God has to exist.* Hence, no matter what explanations I may seek to conjure up in the case of a given outrageous injustice, I know the door is closed to the answer of atheism. So reason comes to the aid of faith. I recommend to all who are likely to be disturbed as I was to make a study of the well-known arguments for God's existence. Once that study is based on reason we are free from serious doubts. We know God is the Author of reason. He does not demand a *blind* faith.

Sometimes believers are accused of putting wishful thinking in place of reason. Man shrinks from the notion of extinction; his mind rebels against the thought of meaning-

lessness; his moral sense feels that somehow injustice must be punished and justice accomplished. And so, the acceptance of the God of the Hebrew-Christian tradition gives man the assurance he needs that death is not the end; that history does have a meaning, not only for the race but for each member of it; that, no matter how long delayed, goodness will be rewarded and wickedness punished. In other words, man puts his wishes in place of the truth.

A little reflection on this charge will show that it is a sword that cuts both ways. Certainly there are people whose religious thinking actually amounts to wishful thinking. The truths of the Faith seem true to them because they fit in with their basic desires. But is this tendency limited to believers? The testimony of those who deal with the direction of souls will bring to light evidence that much doubt, agnosticism, alleged atheism are also born of wishful thinking.

Here is a man whose marriage is unhappy. He is surely to be pitied. And then there enters his life a new love. He finds the woman who is perfectly constituted to make him happy. But the law of Christian monogamy would bind him to his wife until death removed one of them. He goes to his pastor only to be told that the pattern of lifelong union of husband and wife was laid down at the dawn of human history; that the Law was not strictly enforced until the coming of Christ; that the laxity of Moses (which Christ said was due to the hardness of people's hearts) was now abolished and God's original intention and full execution of the Law re-established. "Well," says the pastor's caller, "if that is what Christ taught, then I know He cannot have been God." So we see a man who either gives up all religion in order to acquire the woman of whom he is enamored, or one who shops about until he finds a clergyman or sect that is "broad-minded" enough to take pity on him.

Wishful thinking comes very easily to a prosperous and pampered civilization like that of twentieth-century America. We come to feel sometimes that anything painful or inconvenient must be *ipso facto* false. How much of the unwillingness of the Western nations to face the possibility of utter

disaster at the hands of the atheistic, world-wide Communist conspiracy is due to wishful thinking! But our convenience and pleasure are poor standards for truth, whether held by believers or unbelievers. There are many who classify themselves as unbelievers when the actual situation is that they will not submit to the control of their habits by religious rulings. It was the mighty Augustine who admitted that he was long held back from surrendering to Christ because he could not face the future without his mistresses. His prayer was, as he said, "Lord, make me chaste—but not yet!" When we find God—or rather, when God finds us—*our* day of making the rules is past and over.

Much harm has been done by some religionists themselves by their rebellion against reason. They fear that by trusting the faculty of reason they are somehow disparaging faith. They are determined that nothing shall detract from the complete sovereignty of God. If man can approach Him through reason it seems that man is taking credit to himself.

Of course, man in God's sight is as nothing; that is true. God is Creator of all that exists. All depends on Him for existence and for continuance in existence. But precisely because of that very fact dare we spurn the faculties with which He has endowed us? It was none other than St. Paul himself, the mightiest of all protagonists for the necessity of faith, who bade his readers to examine the visible world about them in order to arrive at the fact of God's existence (Rom. 1:19, 20).

We are commanded to love God "with all our heart and with *all our mind.*" Heart and mind are called upon to make the act of loving faith. Religious devotion does not fly in the face of truth: it is based on truth. And truth itself depends upon man's mind being free to weigh the evidence. Any theory which makes the decisions of the intellect to be no more than machinelike reactions destroys science itself. The scientist in fashioning his theories is not an automaton but a thinker. The very existence of science, to say nothing of its dignity, is saved by man's freedom.

This implies that if the atheistic thesis could be proved

we should have to accept it regardless of its moral consequences. But when atheism has no case at all, when it involves intellectual suicide, then to espouse it, to spread it not only among the sophisticated but also among the primitive peoples just emerging from barbarism becomes morally and satanically wicked. And we live in a time when half the world is committed to making a religion of atheism; a religion of the ridiculous dogma that man like all else in the universe is but a puppet at the mercy of unintelligent and unmoral forces.

By the same token there lies a heavy burden of guilt upon those who profess to believe, and who enjoy the benefits that an intelligent religion has brought, and who fail to lift a finger in defense of the Faith. Nor can we be less than painfully shocked as we think of the great masses of *indifferentists* in our midst. I shall never forget the chill cast upon an instruction class that I was leading. We were discussing the evidences for the existence of God without falling back upon Divine revelation (the Bible). A visitor to the class, a man of the world without pretensions to following the moral standards of any of the churches, said he was willing to concede that I had made out my case. "God exists," he said. "All right. So what?"

It was Chesterton who answered the charge that Christianity had been tried and found wanting with the ringing assertion: "Christianity has *not* been tried!"

Chesterton was right. Reason and science tell us that God exists. Religion confirms it and sheds the light of Divine revelation upon a thought structure that reason and science present in fixed but shadowy outline.

And so this brief chapter takes us to the door of the Church.

To know that God *is,* and to know Him, are two separate concepts.

He is the unescapable conclusion of human thought. Whether or not we go further He has left up to us.

John Clover Monsma, the editor of this volume, had full training for the Gospel ministry, was ordained, and thereafter engaged in extensive post-graduate studies. Instead of devoting his life to the ministry, however, he almost immediately became an author and journalist. Several books appeared from his hand, and he became the founder and editor-in-chief of *The American Daily Standard,* a Christian daily newspaper published for a time in Chicago, and the sensation of American journalism. Afterwards for several years, he was the editor of *The Ministers' Monthly,* an interdenominational publication with a circulation of 50,000 clergymen. He has written for a large number of national magazines and daily newspapers. For twenty-three years he has been broadcasting over a Chicago station.

During all these years Dr. Monsma carried on special studies in political history and general science, and in the science field he made a specialty of the relation of science and religion, and their reciprocal influence through the centuries—a specialty which equipped him in an extraordinary way for the task of editing this volume.

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